

American Artisan

and Hardware Record

Sheet Metal Work-Warm Air Heating

Vol. 93, No. 25

CHICAGO, JUNE 18, 1927.

\$2.00 Per Year

The more *furnace experience*
your customers have, the
more they appreciate
the advantages of
this great
heating
plant

Heavier steel, welded into one SEAMLESS piece. No undersized radiators—a special size for each furnace standard code capacity is plainly designated on each size Waterbury.

Really adequate moisture with a shallow pan placed at the top for quicker evaporation and even distribution. Automatic at slight extra cost.

WATERBURY
SEAMLESS FURNACE
REG. U.S. PAT. OFF. PIPE OR PIPELESS

Our agency proposition will certainly interest you. Write us.

The Waterman-Waterbury Co.

1122 Jackson St. N. E., Minneapolis, Minn.

Complete stocks carried in Philadelphia, Pittsburgh, Albany, Kansas City, New Orleans, Denver, San Francisco, and Seattle.



Some Weir Facts that you should remember



SIZE AND CONSTRUCTION OF RADIATOR

The WEIR has the largest radiator of any steel furnace on the market. Notice how far around each side it extends. It is also deeper. Its inside construction is also different and better. Notice—no dampers.

SPECIAL STEEL Most steel furnaces are built of ordinary "tank plate." The WEIR is constructed of a heavy *special steel* plate rolled to our own rigid specifications. Naturally it costs more, but quality counts.

POUCHES EXTEND THRU FRONT There are no door frames on the WEIR. Doors fit direct to pouches which extend thru the front, eliminating any chance of leakage. Adjustable hinges on doors and surface grinding insure perfect fitting always.

DOUBLE CASING RINGS This is another exclusive feature. This means tight casings—an important step in better, cleaner heating.

GAS AND SOOT CONSUMING The WEIR is the only steel furnace having an air-blast smoke burning construction that is a basic part of the furnace itself—not an afterthought or an accessory but a part of the original construction.

This feature makes WEIR the one furnace that produces hard coal and coke results from ordinary soft coal.

RIVETED PLUS WELDED In order to insure the highest quality the WEIR is both machine riveted throughout and electric arc-welded. There is no bolting of castings to steel. Riveted for strength and welded for absolute tightness.

THESE are just a few of the facts that are illustrated and described in detail in the "Weir Book of Facts." WRITE FOR YOUR COPY TODAY.

The MEYER FURNACE CO.
Peoria, Illinois



This is the Waist High Shaker

NOW optional equipment on all SUPERIOR Furnaces — SUPER-SMOKELESS as well as the regular line — operating flat grates with amazing ease. This type of grate is preferred by many dealers and home-owners.

But whether you give your customers the flat grate with waist high shaker, or the revolving, triangular grate, you insure them a dust-proof ashpit because of the frameless door; the feed door construction is also frameless; and direct connected cleanout, large humidifier, and other talking points too numerous to mention.

It is just such features as these, plus the carburetor on the SUPER-SMOKELESS Furnace, that make the SUPERIOR Line so easily sold and so profitable to the dealer.

UTICA HEATER COMPANY

Makers of Superior Pipe and
New Idea Pipeless Furnaces

UTICA, N. Y.

CHICAGO, ILL.

SUPERIOR SUPER-SMOKELESS WARM AIR FURNACE



WRITE us for interesting details of our Sales Development Plan, with full particulars of the SUPER-SMOKELESS Furnace and its double combustion—burning all fuels smokelessly and with great efficiency.

SUPERIOR DEALERS ARE EXCEPTIONALLY LOYAL ---- WHY ?

Yesterday-Today-Tomorrow

"AFCO" advertising has appeared in the trade papers for more than 20 years. If you have been in business that long you know that the design and construction of "AFCO" furnaces have always been years ahead of most other furnaces.

Today, as in previous years, it would be difficult to find a furnace that will match the "AFCO" Boiler Plate line for strength—practical design—cleanliness—economy in the burning of fuel and price.

Tomorrow and all the tomorrows to come you can expect to see "AFCO" still the leader.

"AFCO" dealers know the power and value of selling the leading furnace. It has brought them success and it will do the same for you.

Even if you are the leading furnace dealer in your town you can win still greater success with the leading "AFCO" Furnace.

A letter or postcard request will bring all the facts. Address American Furnace Co., St. Louis, Mo.

Other Furnaces Come and Go, but "AFCO" Stays and Grows



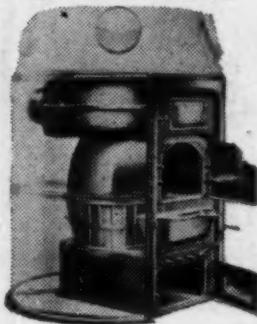
**"Built Like
A
Power Boiler"**

Meeting the Needs of the Western Furnace Dealer

YEAR after year "Standard Line" dealers multiply in number and increase their percentage of the available business. This is mostly due to the completeness of "Standard Service."

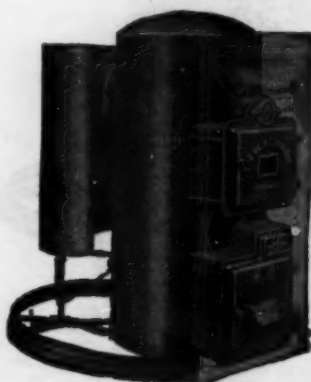
For Instance: From what other source can the Western Dealer obtain such complete selection of modern Warm Air Heaters as the Nesbit; Weir and Stanco Furnaces, 9 styles, and 47 sizes, in all.

Nesbit Moist Heat Furnace



Where else can you send an order for all of the following national brands and be assured of having your order filled complete?

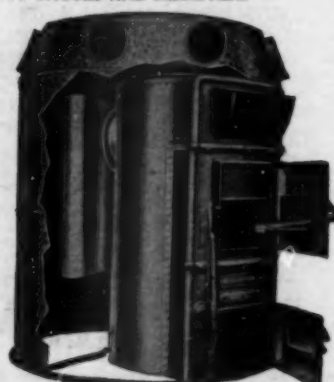
HANDY PIPE AND FITTINGS
"NO STREAK" REGISTERS
H & C—170-190 SERIES REGISTERS
STANCO REGISTERS
WISS SNIPS
PEXTO TOOLS
MAJESTIC CHUTES AND REGISTERS



WEIR STEEL FURNACE

Also the staple lines such as steel and semi steel Registers; Wood Grille; Whitney Tools; Asbestos Paper and Paste, etc., etc.

In fact we have everything for the Furnace-man.



STANCO STEEL FURNACE

STANDARD FURNACE & SUPPLY CO.
OMAHA, NEBR.

BOOMER

THIS is our latest addition to the Boomer line. We heartily recommend it for your favorable consideration.

The severe tests we have given this furnace have proven its durability. The unsolicited reports we received from users last winter have been most flattering.

For durability, economy, easy to operate, easy to set up and the low price at which we offer this furnace, you will make no mistake in arranging for the agency.

THE HESS-SNYDER CO.
MASSILLON, OHIO

Makers of BOOMER FURNACES for Forty-Three Years



The Economical

NIAGARA FURNACE



THE Home Owner today demands a heating plant that not only operates successfully but economically as well.

The NIAGARA holds that reputation.

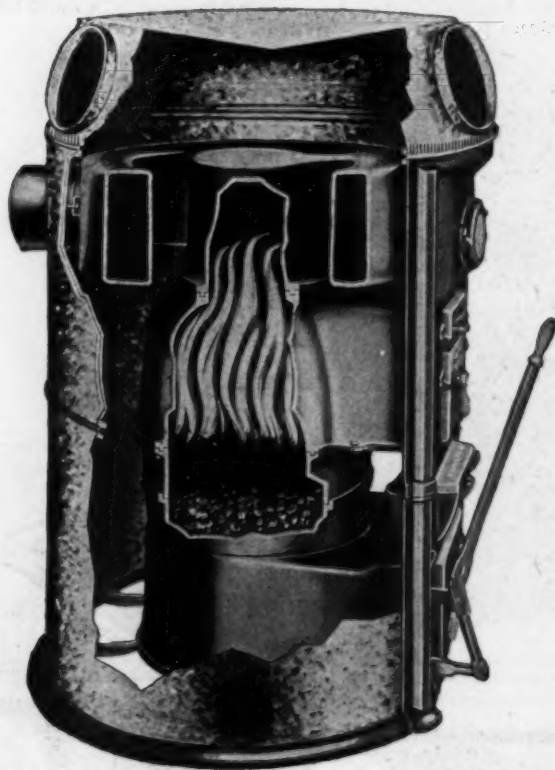
It is built right—sold right. Our Dealer Co-operation Plan assists you to sell it and install it in a way that wins permanent friends.

Ask us about the Niagara Dealer Franchise.

Also Manufacturers of
Monarch Furnaces

THE FOREST CITY FOUNDRY & MFG. CO.
1220 Main Avenue
Cleveland, Ohio.

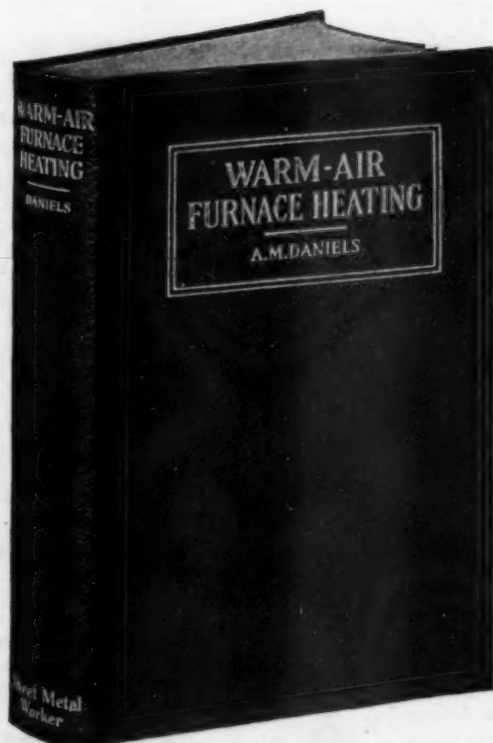
A Quality Furnace



-yet still in the competitive Field

For dealers who sell only a few furnaces or install hundreds a year—the Robinson "Gem" fills the bill. A *quality* furnace has certain outstanding points—the "Gem" has them. For the man who buys in substantial quantities, we offer this same *quality* furnace plus an attractive price. It means profitable sales—for both the quality and competitive dealer. The Robinson "Gem"—backed by 50 years' experience—is the outstanding furnace proposition in the field. It will interest YOU. Write for further particulars.

The Robinson Gem
Robinson Furnace Co.
205 West Lake St., Chicago, Ill.



Here is the book they are all talking about---

Just off the Press—Now ready for you

IT IS the book that you have been asking for—a book on Warm Air Furnace Heating that is UP-TO-DATE—a book that covers every phase of the subject giving exact data based on research work.

Written by A. M. Daniels.

Here is the book that will enable both the experienced furnace man and the student to obtain a working knowledge of up-to-date scientific warm air furnace heating.

It covers the subject completely.

Many tables are included and some big labor savers in calculating pipe sizes—also many diagrams.

450 pages, 7x9 inches

*Bound in semi-flexible imitation leather--
Stamped in gold--*

PRICE \$5.00 POSTPAID

Send in your order today

AMERICAN ARTISAN,
620 So. Michigan Ave., Chicago, Ill.

Enclosed find \$5.00 for which send me WARM AIR FURNACE HEATING by A. M. DANIELS.
10% discount allowed on book and renewal subscription if ordered together.

Name

Street Number

Town State

When writing mention AMERICAN ARTISAN—Thank you!

Give your buyers a **FORCED AIR** HEATING SYSTEM

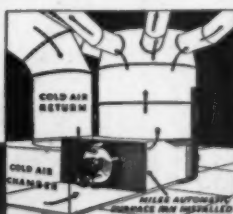
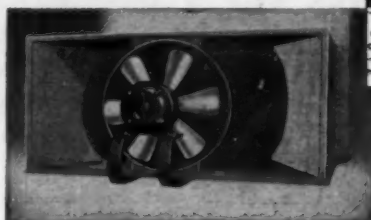
Warm air winter~Cool air summer

HOUSE buyers are looking for the extras—the new, the modern, the up-to-date. Often a sale trembles in the balance for lack of them, or goes over because of them. The most important extra you can offer your prospect is a heating system that does a wonderful heating job in winter and then becomes a cooling and ventilating system in warm weather. **FORCED AIR**, the new, modern system.

FORCED AIR is sold on a guar-

anteed heating performance basis. It assures all the heat units needed and guarantees to deliver them to any room in the house, no matter whether in distant wings or in the third story. It guarantees to deliver what every physician knows contributes to good health, **AIR IN MOTION**. Air in constant motion and frequent air changes, plus extra heating efficiency, are what you give buyers when you deliver a modern **FORCED AIR** Heating system.

Miles Automatic Furnace Fan with Fan idle—louvers open



Showing general idea of installation permitting alternating gravity and forced air system



Miles Automatic Furnace Fan with fan in operation

The illustration shows the two important essentials in a **FORCED AIR** heating system.
(1) A good warm air furnace. (2) The Miles Automatic Furnace Fan with patented automatic louvers.
Forced Air is warm air plus positive pressure air circulation.

Positive Pressure Air Circulation

The positive pressure air circulation is built up by the Miles Automatic Furnace Fan. It is placed in the cold air duct. It draws the cold air from the rooms and blows it over the furnace castings at high velocity. This means cooler castings and consequently a larger volume of warm air. It means less chimney waste. It means more heat units delivered into the house. It also means positive pressure, blowing or "forcing" the air up the pipes through every register.

1. Doubles Heating Capacity of Any Furnace
2. Saves 30 to 40% Fuel—Any Fuel
3. Gives 4 Changes of Air Every Hour in Every Room
4. Supplies Cool Air in Summer

Best For Any Home

FORCED AIR is the best heating system for any house—no matter what the size. It can be used with any fuel—any make of furnace.

The Miles Automatic Furnace Fan permits an alternating gravity and forced air system.

Your furnace dealer probably has a demonstrator set up to show you. Ask him. Or, write us at once for catalogue and data. It will be sent you free of charge. Please tell us from what standpoint you are interested. We don't sell direct but only through dealers and furnace manufacturers.

Get "Forced Air" Heating Plans Without Cost to You

Send blue prints of floor plans and our engineers will lay out "Forced Air" plans on which you can get figures. Remember, you get guaranteed results when you install Forced Air according to our plans.

We co-operate with architects, builders, furnace manufacturers and furnace dealers. We want to co-operate with you. Use the Coupon or your own letterhead.

THE WARM AIR FURNACE FAN COMPANY
6521 Cedar Avenue Cleveland, Ohio

USE THIS COUPON TO GET INFORMATION

THE WARM AIR FURNACE FAN CO., 6521 Cedar Ave., Cleveland, O.

Kindly send me the following:

- ☐ Catalogue of Miles Automatic Furnace Fan and complete data.
- ☐ Proofs showing big residence jobs.
- ☐ Proofs showing garage jobs.
- ☐ Proofs showing church jobs.

NOTE: If you want plans for Forced Air Heating free of charge send us blue prints of all floor plans.

Name _____

Street _____

City _____

State _____

REPAIRS

for **STOVES-FURNACES-BOILERS**

Send for our illustrated Order Blanks

NORTHWESTERN STOVE REPAIR CO. CHICAGO-ILLINOIS

"American Seal" FURNACE CEMENT

*Roof Cement — Stove Putty
Plumbers Putty*

PAINTS and SPECIALTIES

WILLIAM CONNORS PAINT MFG. CO.
TROY

Established 1852

NEW YORK

JAMES L. PERKINS

Western Distributor

140 S. Dearborn St., Chicago, Ill.

BOLTS

WE MANUFACTURE A COMPLETE LINE OF BOLT PRODUCTS, INCLUDING STOVE BOLTS, CARRIAGE BOLTS, MACHINE BOLTS, LAG BOLTS, NUTS, COTTER PINS, ETC. ALSO STOVE RODS, SMALL RIVETS AND HINGE PINS, CATALOG ON REQUEST.

THE KIRK-LATTY CO.

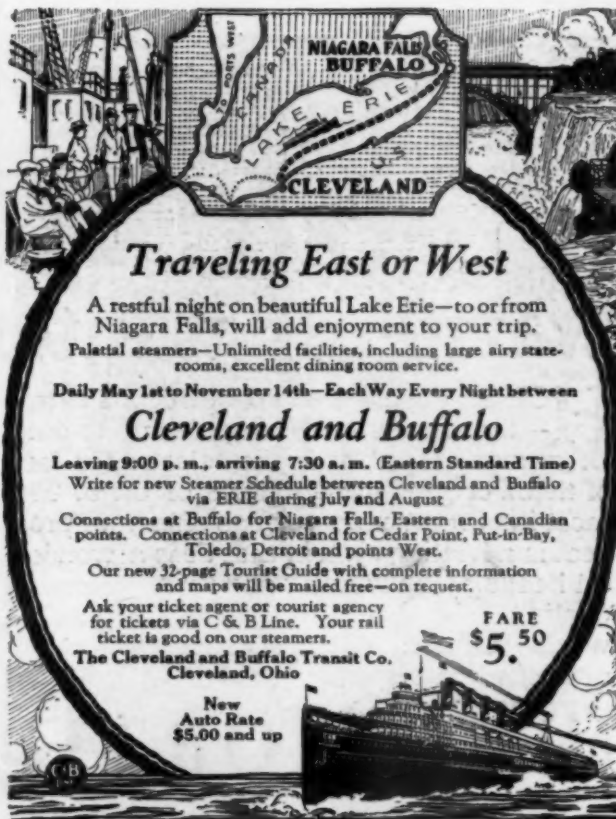
1971 W. 85th St. Cleveland, O.

PATTERNS FOR STOVES AND HEATERS
THE CLEVELAND CASTINGS PATTERN COMPANY
CLEVELAND, OHIO

PATTERNS

FOR STOVES AND HEATERS FIRST-CLASS
IN WOOD and IRON
VEDDER PATTERN WORKS ESTABLISHED 1833 TROY, N. Y.

IRON AND WOOD
STOVE PATTERNS
QUINCY PATTERN COMPANY
QUINCY, ILLINOIS



Traveling East or West

A restful night on beautiful Lake Erie—to or from Niagara Falls, will add enjoyment to your trip. Palatial steamers—Unlimited facilities, including large airy state-rooms, excellent dining room service.

Daily May 1st to November 14th—Each Way Every Night between
Cleveland and Buffalo

Leaving 9:00 p. m., arriving 7:30 a. m. (Eastern Standard Time)
Write for new Steamer Schedule between Cleveland and Buffalo via ERIE during July and August

Connections at Buffalo for Niagara Falls, Eastern and Canadian points. Connections at Cleveland for Cedar Point, Put-In-Bay, Toledo, Detroit and points West.

Our new 32-page Tourist Guide with complete information and maps will be mailed free—on request.

Ask your ticket agent or tourist agency for tickets via C. & B. Line. Your rail ticket is good on our steamers.

The Cleveland and Buffalo Transit Co.
Cleveland, Ohio

FARE \$5.50

New Auto Rate \$5.00 and up



FANNER STOVE AND FURNACE TRIMMINGS

For Quality and Service use Fanner Trimmings. We operate our own Malleable and Gray Iron Foundries.

Write today for latest illustrated catalog which lists and describes our complete line.

THE FANNER MFG. COMPANY
BROOKSIDE PARK CLEVELAND, OHIO

If there is a tool or machine that you need and you don't know where to get it—

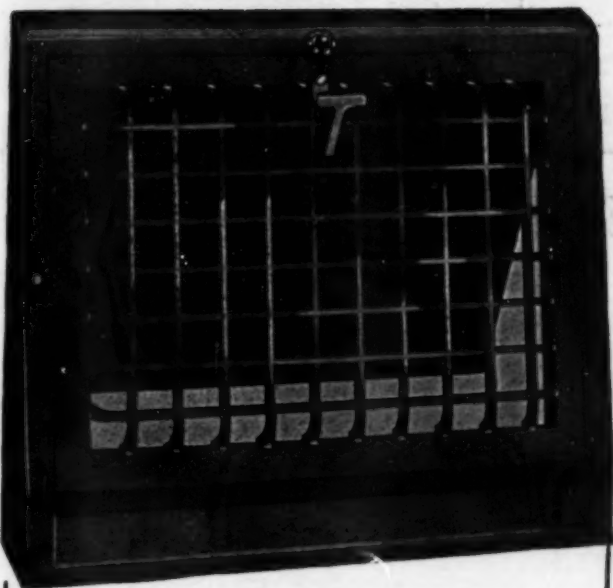
Write to the

Notes and Queries Dept.

of

AMERICAN ARTISAN

Read the Wants and Sales Pages



Have you seen it?

WALWORTH

New Standardized

STYLE B

Baseboard Register

NOT only made throughout in accordance with the rules of the Standardization Committee but it is the *neatest* durable register ever made to sell at a popular price.

Simple, easy and accurate in operation, cast face made of the best iron, finished in all the popular finishes and made in the following sizes:

8x10	inch	2 1/4	base	extension
8x12	"	2 1/4	"	"
9x12	"	2 1/4	"	"
10x12	"	3 1/4	"	"

Study the features of this new register.

Write today for full particulars and prices on the Walworth New Standardized Style B Baseboard Register.

Order some for that next job—your customers will want them.

Made by the makers of Walworth Double Gratings, Semi-Steel Registers, Side Wall and Floor Registers, Ventilators, Borders and Casings Rings.

**THE WALWORTH RUN
FOUNDRY COMPANY**

West 27th Street and N. Y. C. & St. L. R. R., Cleveland, Ohio

Distributors:

ROBINSON FURNACE CO., Chicago, Ill.

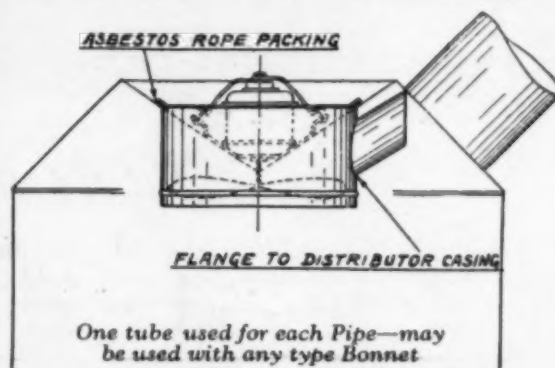
HART MFG. CO., Louisville, Ky.

PHILLIPS & BUTTORFF MFG. CO., Nashville, Tenn.

Eastern Representatives:

PENN TINSMITH'S SUPPLY CO., Philadelphia, Pa.

Forced Air Heating is Simple and Efficient with the **ROBINSON** Heat Distributor



Notice--forcing is flexible--directed to the pipe desired and as much as needed--

THE tube sizes leading to the heater pipes are measured according to the requirements of each individual pipe—tubes ranging from three to five inches may be used.

The ROBINSON Heat Distributor is equipped with a three-speed motor, giving an air delivery of 800, 1350 and 1500 Cubic Feet of Air Per Minute.

The ROBINSON Heat Distributor is easily installed in *any type bonnet*.

This is the Forced Air Unit being used by live dealers everywhere—write for construction details *NOW*.

Write for prices and installation directions today.

The A. H. ROBINSON CO.
MASSILLON, OHIO

Published to Promote
Better
Warm Air Heating
and
Sheet Metal Work

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American Artisan
and Hardware Record
Sheet Metal Work-Warm Air Heating

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THE PROOF OF THE PUDDING

TO AMERICAN ARTISAN:

Our copy of your June 4th issue at this writing has not arrived. We miss it. Our week is disarranged by its absence.

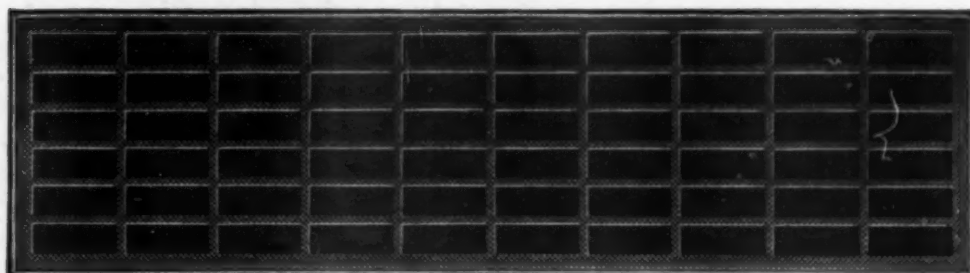
The undersigned is at sea without your market report page. This is digested immediately upon its receipt. Balance of contents are read at leisure.

Now we understand Uncle Sam makes mistakes, too, and really think he has failed to deliver the goods in this instance. So we are not blaming you.

However, send us a June 4th issue at once.
Springfield, Ohio.

CHAS. F. HAUCK & Co.

This Face Shows a Lot of Common Sense



Style C "Cobble" Cold Air Face

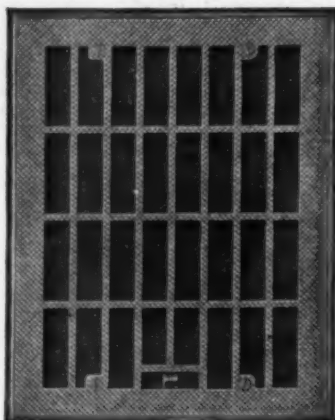
REAL economy is usually the result of common sense. And it is common sense and economy both that have brought such tremendous popularity to the "Cobble" Cold Air Face. This face has many advantages over the old wood or stamped steel faces—advantages that mean dollars and cents to the installer; increased sales to the dealer.

Among the various superior features of "Cobble" Cold Air Faces are:

- Long, hard wear of "Cobble" face.
- Non-skidding face due to tiny "cobble," which also preserve finish indefinitely. Wear comes only on "cobble" tips.
- Tanbo Antique Finish, a special T&B color that is neutral, suitable for any interior color scheme. (This eliminates necessity of dealers carrying large stock.)
- Rolled edge and narrow rim makes installing a cinch, without recessing floor. Fits snugly and evenly. Saves time and labor.
- Cast iron construction gives desirable depth to cross-barrings and hides ugly duct from view.
- Open design fretwork insures ample circulation.

Style "C" Cold Air Face is no higher in price than steel faces, although its substantial construction would easily lead many to think otherwise. In fact, prices are same as those of oak finished steel faces.

Send coupon for full details of this profit-making "Cobble" line.



Style 80 "Cobble" Register
—to match the Style "C"
Cold Air Face.

Register Capacity

Exhaustive tests conducted by the National Warm Air Heating and Ventilating Ass'n, have established that a register gives 100% capacity if the fretwork in its face DOES NOT EXCEED 30% of the opening size. Thus T&B Registers and Faces are designed to give 100% capacity — and they do!

TUTTLE & BAILEY MFG CO.

Established 1846

441 Lexington Avenue

New York City

TUTTLE & BAILEY MFG. CO.,
441 Lexington Ave., New York City.

AA 6/18/27

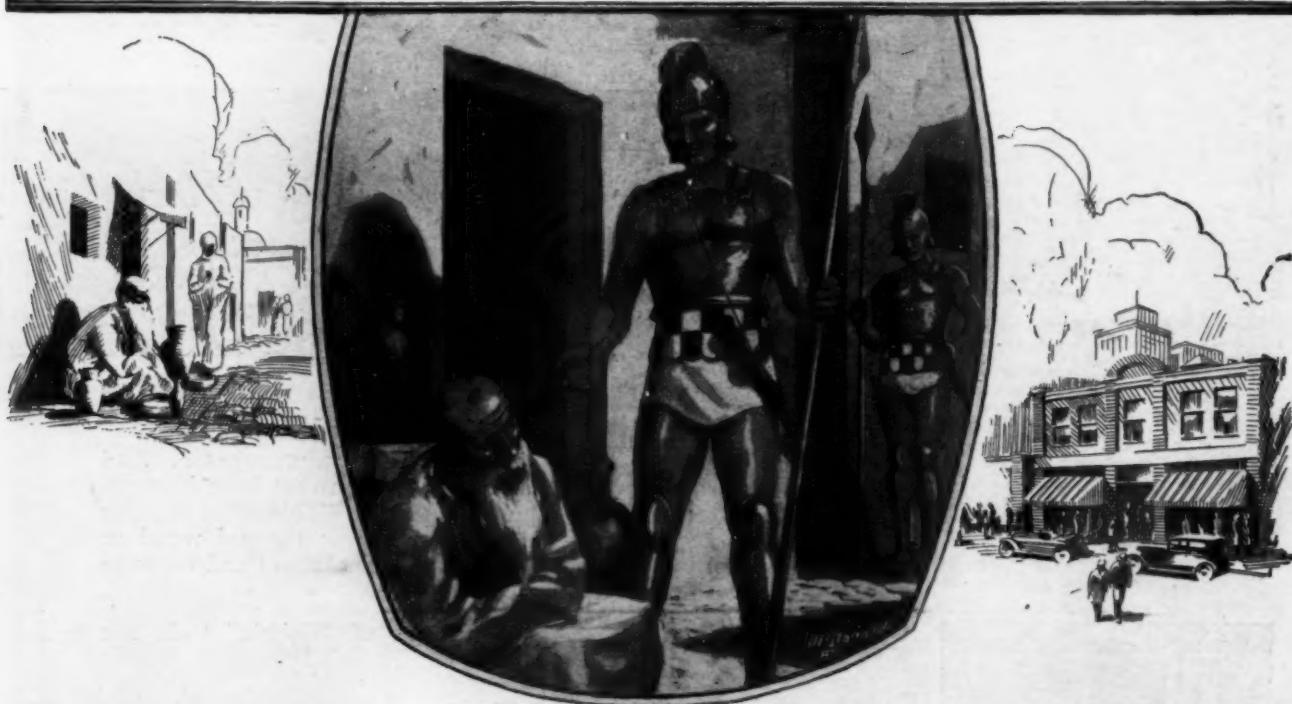
Gentlemen: Please send information regarding the "Cobble" line.

Name

Address

Mention AMERICAN ARTISAN in your reply—Thank you!

The Vendor Who Cut Off His Hands



THERE is an old story about a merchant in a distant land who, when informed by the King's men that the despotic ruler had placed a tax of one piece of silver on every hand throughout the land, forthwith cut off his hands to evade it.

How shortsighted of Ben Ali, or whatever his name. The poor merchant, incapable of earning, unable to survive, passed out—starved in helpless poverty. He had evaded the tax and saved his piece of silver—but in so doing had lost all.

Well, here's the point. The hands of your business and of ours are the service and values we deliver to our customers. We might just as well try to make gold out of carrots as to

try to build a sound business without them. The furnace man who skimps on the quality of his job saves a pittance but in so doing undermines his reputation—jeopardizes his future.

Ponder this. Lamneck Simplified Pipe and Fittings cost no more than any other ready made fittings of standard make. In fact, these neat, trim, sturdy items cost very little more than the metal in the rough. What penny wise folly then to accept similar products of questionable merit or to waste your time and effort making them in the shop.

"Lamneck's" are the best that skill, experience and flawless raw materials can make—true to promise, true to gauge—honest value. Why not give this quality to your customers?



THE W. E. LAMNECK COMPANY, 416-432 Dublin Ave., Columbus, Ohio

Western Representative: THE QUICK FURNACE & SUPPLY CO., Des Moines, Iowa

LAMNECK

**SIMPLIFIED
PIPE AND
FITTINGS**

(NOTE: Write for catalog and prices. Samples of our own manufactured products free for the asking.)

When writing mention AMERICAN ARTISAN—Thank you!



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Vol. 93.

CHICAGO, JUNE 18, 1927.

No. 25.



Window Display of the G. & S. Stove and Furnace Company, 4223 West North Avenue, Chicago, Illinois, Showing How This Progressive Company Features Warm Air Heating.

Warm Air Furnace with Fan Heats 20 Rooms and 4 Baths on Three Floors

*Fan Required Only 10 Minutes Per
Day to Start Circulation in Long Duct*

THE Travelers' Auxiliary of the Illinois Sheet Metal Contractors' Association did a mighty good thing when they put on the window display competition. They started sheet metal and warm air heating contractors to thinking that the latter were not taking the fullest possible advantage of their windows as sales adjuncts.

As a result of this competition a number of the more progressive dealers got busy and staged window displays just so they could enter them into the competition. They were surprised at the beneficial

effect this little activity had on increasing their sales, and on the increase in inquiries about warm air heating that resulted.

Among those who submitted photographs for this competition was the G. & S. Stove and Furnace Company, 4223 West North Avenue, Chicago. Contained in the window is the following material taken from stock:

"This window was dressed up shortly after we took on the Lennox Furnace Company's 'Torrid Zone' Furnace and its prime object was to introduce this furnace to the

home owners in our district.

"The furnace is the prime factor in this window and all other objects were placed in the window with the idea of showing the prospective customer the strength, durability and superior workmanship of the furnace.

"The furnace is a No. 48-24 'Torrid Zone.' All registers shown are No. 170-14 series, Hart & Cooley, and are white japan and lacquered antique bronze finish. Stock heads, boots, elbows, angles and other fittings shown are made of first-class material in our own



Another Window Display of the G. & S. Stove and Furnace Company Made in the Old Location of the Company, Which Is Directly Across the Street from the Present Store.

shop which is in our basement.

"The framed card shown in front has a copy of the Standard Code in the upper left hand corner and at the bottom center is a ten-year guarantee issued with the 'Torrid Zone' furnace by the Lennox Furnace Company. At the top of the card is our warm air heating slogan: G. & S. Healthful, Humidified Heating Systems. Installed by the Standard Code as adopted by the National Warm Air Heating and Ventilating Association.

"Below this appears: The Lennox Torrid Zone Steel Furnace Gas and Soot Tight. At the lower left are the words: For any type of fuel and at the right it says: Over 150,000 in use today."

Shortly after this photograph was taken, the G. & S. Stove and Furnace Company moved its store and shop into larger quarters directly across the street. Here they had even better opportunities for the making of window displays and again they took full advantage of



Left—Building Having Twenty Rooms and Four Baths Heated with Warm Air. Right—Furnace in Basement which Heats the Building.

the possibilities. On page 121 is shown the window display that was made in the new location. This photograph was not entered into the competition because it was made by the staff photographer of AMERICAN ARTISAN after the competition had closed.

The G. & S. Stove and Furnace Company does not stop at the installation of furnaces in ordinary houses. Another illustration with this article shows a rooming house located on the northwest side of Chicago having twenty rooms and four bath rooms, all of which are heated by the one warm air furnace. The furnace which accomplishes this herculean task is also shown as it stands in the basement of the building.

Of course there is attached to this furnace a Robinson fan, located in the top of the furnace bonnet.

This installation has been in operation since about December 10th last. During its period of operation it has given entire satisfaction to the owners. It has only been necessary to run the fan 10 minutes each day, about 5 minutes in the morning to start the circulation through the system and 5 minutes along towards evening. There is only one particularly long run, which carries the warm air to the third floor, in which it was found necessary to start the circulation. Once this was started, the system functioned perfectly. This system was installed complete for \$728. It has been functioning perfectly since December.

how to put in a furnace right to this day. He is one of those installers that see how many they can put in without any profit and still keep from starving to death or going bankrupt.

I said to him, "Bill, how is it going in the furnace line?"

He said, "Things today are terrible, my dad figured 50 new bungalows out west for a real estate concern and his bid was \$165.00 per building, and lost out on the job, because some firm put in a bid of \$145.00 per building."

He then mentioned the fact that his dad was going to make those cheap guys hunt their holes because he can put furnaces in for \$135.00 and if they get him mad enough he will do it.

Now contractors, why not get together and stop that condition. The manufacturers who refuse to sell furnaces to that kind of installers, because if you do, you will get back in the future ten times the amount of money and good will you would sacrifice today.

Just a ~~Timber's~~ Dream!

By SAM J. SORENSEN

LAST night I lay a dreaming, and what a wonderful dream I had.

I saw, in my dream, a Sheet Metal Contractors' Association in Chicago and suburbs second to none.

I saw a big sign over its headquarters that read, "We stand upon a foundation built on good sheet metal and furnace work only."

I saw the furnace manufacturers selling their goods to Standard Code installers only.

I saw furnace installers telling cheap skate." building contractors to pay the price or they could have no furnace.

I saw people demanding and buying warm air heated homes roofed with sheet metal.

I saw all sheet metal and warm air furnace installers busy, happy, and a help wanted sign on their front doors.

I saw the ground white with snow, and as I looked in at a window at a warm air heated home, I saw healthy kids playing happily on the floor.

I saw a smile of contentment on the peoples' faces as they were firing their furnaces.

I saw that the head of the house had money, because he wasn't spending it all on fuel and repair bills.

I saw the mothers sitting by the window happily at work sewing, not having to sit over a furnace register to keep warm.

Whew! I awoke. My first thought was, how wonderful it would be if my dream would only come true. It will if the contractors will study up on the Standard Code, join a good association, and stick together. So let's go!

Before Lindbergh started his wonderful flight, it was just an aviator's dream. After he had completed it the dream had come true, proving that there is nothing impossible even for the sheet metal or furnace man.

It sure is too bad that a half a dozen progressive sheet metal and furnace men don't spring up and help to put the industry over.

One day last week I was talking to the son of quite a large warm air furnace installer here in Chicago.

His dad is one of those poor installers that has been in business for the last 30 years and doesn't know

O. Burt Hart, 1008 Sixth Street, Milwaukee, Enters Business—Wants Catalogs

Among the new entries into the warm air heating and sheet metal contracting business in Milwaukee, Wisconsin, is O. Burt Hart, 1008 Sixth Street, who has opened a shop of his own. Mr. Hart is desirous of receiving catalogs from the various manufacturers of furnaces and sheet metal products.

Mr. Hart is a most thorough workman. He has worked hard and long for the opportunity to enter the business on his "own" and deserves all of the success in it which we are sure will accrue to him from his activity.

Who Makes a Wire Eaves Trough Hanger Known as the "Ideal"?

To AMERICAN ARTISAN:

Will you please inform us who manufactures a wire eaves trough hanger known as the "Ideal"?

HANBURY SHEET METAL CO.

512 West 8th Street
Des Moines, Iowa

Giving Consideration to Free Area in Warm Air Furnace Installation*

Many Factors Are Apt to Be Overlooked Unless Special Attention Is Paid Them

By JOHN S. WALKER, Heatcraft Institute, Peoria, Illinois

THE free area through the cold air return is often less than the installer has estimated. Obstructions

often are not taken into account. Sufficient deduction should always be made where return air is carried

between joists past a lap joint on a wall, as in Figure 18.

Where sub-flooring is laid on a diagonal the ends are often blocked up where cut for the cold air register. (Figure 19.) The free area of a duct can not be figured any greater than it is at its narrowest point.

Bridging should be removed from the cold air duct and a brace nailed below. It not only reduces the free area, but also causes eddies that slow up the current of return air.

Unless a special transition fitting is used between horizontal and vertical cold airs, the center joist should be sharply beveled as at A in Figure 21. Unless this is done the free area of the cold air is considerably reduced.

When the space between two joists has been used as a cold air return, the free area of one space may be greatly reduced unless a collar is centered. This error is shown in Figure 22.

Figure 23 shows an ideal transition between a horizontal and vertical cold air duct. It makes possible a more rapid flow of the return air.

Enough can not be said against the practice of bringing return air up between the joists from a duct running below them. The usual warm air heating plant is a gravity system. The cold air connection in Figure 24 acts as a counterbalance that reduces the motive power. Higher register temperatures must be maintained to heat this house satisfactorily.

Always use a baffle plate where two branch lines join, as in Figure 25.

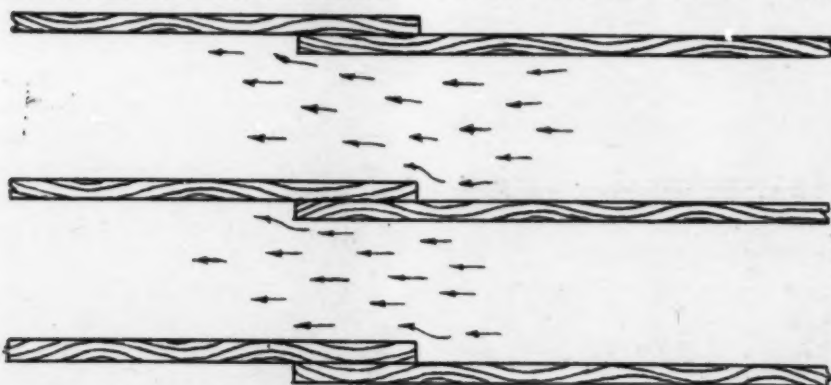


Fig. 18.



Fig. 19.



Fig. 20.



Fig. 21.

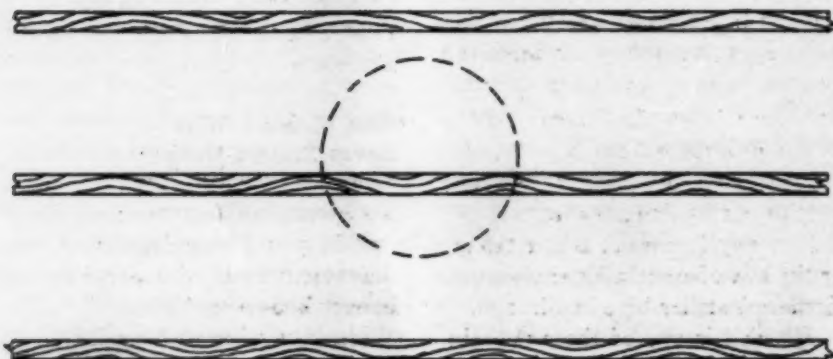


Fig. 22.

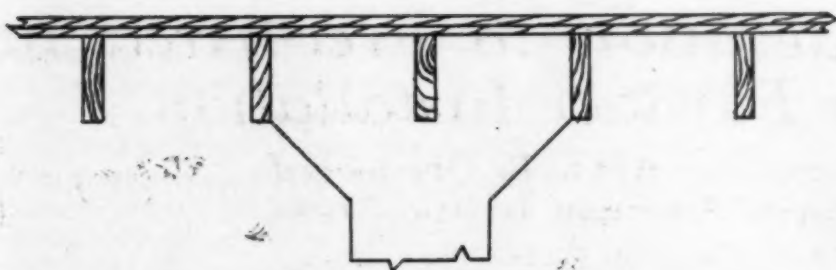


Fig. 23.



Fig. 24.

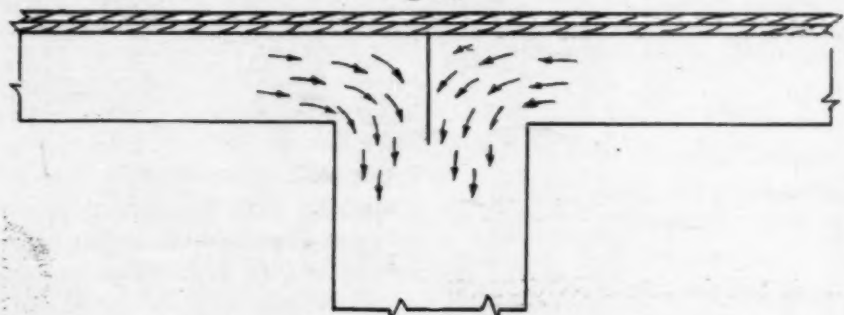


Fig. 25.

A Frank Talk With Furnace Dealers on Competition

Real Service Need Have No Fears of Competition—Best Man Wins Out

THERE come into National Warm Air Heating and Ventilating Association headquarters many letters from furnace dealers. Some of these are filled with encouragement and enthusiasm. They come from men who have found the furnace industry a profitable line of work and who are building for themselves prosperous and permanent businesses, according to the *Furnace Installer*.

There is another group. These come from men who find difficulty in making both ends meet so that there is enough in between for a decent living surplus. These dealers make certain comments regarding the furnace business, some of which are so frequent that they deserve attention.

Probably the most common one

is that of unfair competition. Some dealers have difficulty in meeting the competition set up by those who sell cheap goods and who sell to a cheap market on almost any price they can get. Others have been frightened by the threat of direct from the manufacturer selling. Each class makes suggestions for general improvement and hopes that his individual problem can be solved by some sort of legislation or trade regulation. Somehow they seem to feel that their worries and troubles are peculiar to their respective towns or to their own individual businesses.

As a matter of fact, selling goods in this enlightened year of 1926 is basically the same whether the commodity be shoes, automobiles, fur coats or furnaces. The differences

are merely those of detail. Goods must be made and they must be sold and there are certain accepted ways which have been proven most successful in both manufacture and selling. But the whole procedure, from beginning to end is one of competition. If a manufacturer does not make as good a furnace as his competitor, the market will not want it. And if the dealer has not the selling ability of his competitor, he will lose out in the race.

Now apply this to local conditions. A is a manufacturer working hard to produce the best furnace he knows how to make. He must sell the product of his foundry or go out of business. He makes an arrangement with B to handle his line. If B cannot dispose of it he has two alternatives; one is to find someone who can and the other is to sell direct. A cannot tolerate bad business methods or indifferent selling on the part of B; that would be as fatal as to employ a foundry superintendent who was not on the job.

See how this situation works out in certain towns. Here is one—an actual case—in which two dealers have for years been installing about 30 furnaces each every year. Along comes a manufacturer selling direct and in the second year of operation puts in 80 furnaces in that town. Those two dealers have been frightened white. They both are sure that the furnace business has gone to pot and that they are the victims of unfair competition.

Now here is another town of about the same size. In it is a dealer who applies modern methods of merchandising. A direct selling manufacturer entered that town with the same methods that frightened the other two dealers and in two years was forced to close the branch. The original dealer had made it impossible to operate the branch at a profit. There is no furnace manufacturer in existence today who can take business away from that dealer by any methods of direct selling or otherwise. And there is no cheap competitor who can do him a bit of harm. He has entrenched himself so thoroughly in

his own community by methods of good business, good workmanship and intelligent service that his customers cannot be won over by any argument or inducements. His name in that town stands for the last word in heating.

The difference between this man and the other two is the secret of the whole problem. It is simply a manifestation of the law of the survival of the fittest which, in the last analysis, all business is. The last man is just as competent from a business point of view as any competitor that can come into his field and thus he holds his own. The other two are slipping. Whether they like it or not they will be forced out in the pressure of modern merchandising unless they revise their policies and learn how to be better merchants than the other fellow.

Thus it is, when all is said and done, that the differences in records of one shop or another are not those of competitors and trade conditions, with rare exceptions, but, rather, those in the efficiency with which existing conditions are met. If a dealer really sells his goods—not just takes 'phone orders; if he sells goods of quality, installs them according to the Standard Code, gets a good price for them and then stands back of them with honest service, he need fear no competition for there is always a ready market for that kind of merchandising in any community.

Rock Island Register Co. Issues New Register Catalog

Among the new publications that have made their appearance this week is an attractive 62-page catalog on Rock Island Wall Registers, manufactured by the Rock Island Register Company, Rock Island, Illinois.

This catalog is more than a presentation of the products which the Rock Island Register Company has to offer the trade; it is a liberal course of instruction on the proper construction of a register and other fittings, information without which

no furnace installer can hope to get very far.

A feature of the catalog is the information given on the combination of the return receiving box and the universal shoe. With this arrangement, the company officials say, the dealer can make a return pipe installation having the very highest possible efficiency without using any additional boots or elbows or angles, as the connections on both the receiving box and on the shoe are adjustable to several positions.

The Rock Island line of registers is illustrated in natural finish colors, and a copy of the latest issue of the Standard Furnace Code is included in the catalog. If you have not already received your copy, write for it.

How to Figure Accurately the Costs of Doing Business

Here are some rules for accurately figuring the costs of doing business compiled by the Sheet Metal Contractors' Association of Ohio and presented to the members in session at their recent convention.

1. Charge interest on the net amount of your total investment exclusive of real estate.
2. If you own real estate or buildings used in business, charge rent for them equal to the amount they would bring if rented to someone else.
3. For your own services, and those of any members of the family who assist in the business without pay, charge an amount equal to what these services would be worth to others, adding this item to the cost of hired help.
4. Charge depreciation on all goods on which you have to cut the price for any reason.
5. Also charge depreciation on building, fixtures or anything else which time and use depreciate.
6. Charge amounts donated or subscriptions paid.
7. Charge all fixed expense, as water, light, fuel, taxes, insurance, etc.

8. Incidental expenses, such as drayage, postage, livery expenses, office supplies, telegrams, telephone, advertising, canvassing, etc., must be charged, as well as losses of all sorts, including goods stolen, goods set out and not charged, allowance made customers, bad debts, and the cost of collecting bills. Also charge any other expenses not mentioned above.

9. The total of all of these items of expense for the year will give what it has cost to do business, and this figure divided by the amount of total sales will give the per cent it has cost you to run your business.

10. To give net profits or loss on any article sold, take this per cent from the price of the article and subtract from the remainder the total cost of the article to you.

Schlatter-Salm Partnership at Peoria Dissolved—Schlatter & Kratzert New Owners

Notice is hereby given that the co-partnership formerly operated by William D. Schlatter and Elmer A. Salm, at 205 South Madison Avenue, Peoria, Illinois, under the co-partnership name of Schlatter & Salm, which co-partnership has heretofore operated a general sheet metal business, has been dissolved, such dissolution to be effective from and after June 15th, 1927.

The business formerly operated by this co-partnership will in the future be carried on by William D. Schlatter and Mildred C. Kratzert under the firm name of Schlatter & Kratzert.

(Signed)

William D. Schlatter,
Elmer A. Salm,
Mildred C. Kratzert.

National Regulator Co. Appoints Frank C. Gibbs Eastern Manager

National Regulator Co., 2301 Knox Avenue, Chicago, announces that Frank C. Gibbs has been appointed eastern manager of the company, with offices at 166 Lexington Avenue, New York.

The Editor's Conning Tower

All-Metal House to Create Demand for Welders

IN THE June 11th issue of AMERICAN ARTISAN there appeared an article by Bennet Chapple headed, "Day of All-Metal Home Looms Rapidly on Building Horizon."

A startling statement, you will say, and one that calls for the widest range of imagination, but one that is not beyond the pale of possibility of realization.

The keynote of the address was sounded by Mr. Chapple in the statement that the construction of the all-metal house is going to bring forth a new mechanic—a hybrid or a cross between a welder and an iron worker.

Hence, if the sheet metal man wishes to keep pace with the times and put himself into possession of knowledge which will enable him to fit into this new work with very little necessity for readaptation, he must learn the use of the welding tools now; he must learn how best to join two pieces of metal together into a permanent joint.

The sheet metal worker must take care that this new work which is coming up does not get away from him in a manner similar to that which took the automobile repair business away from the old-time blacksmith.

The all-metal house is surely on its way, and the mechanic who will be the one to erect it will be the one who now prepares himself.

Helping Furnace Dealer Help Himself

AT THE recent convention of the Western Warm Air Furnace and Supply Association, held at Peoria, the question was asked by a dealer: "How much money are the manufacturers spending on the education of the dealers?"

Well, it would seem to the outsider viewing the situation impartially that the manufacturers had spent a great deal more than the returns they received from it justified before he tumbled to the fact that he was on the wrong track.

But the warm air furnace dealer can no longer say that the manufacturer is not doing his share toward popularizing the warm air heating system. If he does, all the manufacturer has to do is to refer him to the research work that is being carried on at the University of Illinois, and for which the manufacturers are paying.

The results obtained from the research work of the University of Illinois far outweigh anything that any individual manufacturer has done or could have ever done for the dealer. Placing definite data in the dealer's hands concerning the warm air heating system and its function and performance is far more valuable to the

dealer from a sales standpoint than any set of alleged dealer helps could possibly be.

If the manufacturers did nothing more than complete the research work they are doing, they could truthfully say that they had done enough for the dealers.

It is pretty near time that the warm air furnace dealer himself woke up and started to do a little something for himself. It is time that he cease wishing that the manufacturer would do something for him and go do something for himself. Let him get the latest information from the University of Illinois, as contained in Circular No. 15. Let him study this and use it intelligently in his sales efforts. Armed with information of this character, the furnace installer needs no further help from the manufacturer. He should be able and willing to fight his own battles from that point on, as many of them are already doing.

Kansas City and Fort Wayne Enter Ordinance Fold

THE warm air heating men in both Kansas City, Missouri, and Fort Wayne, Indiana, have been successful in getting the Standard Furnace Ordinance through the city councils of their respective towns. They are to be congratulated on the good work that they have accomplished. It is the only way that order can be brought out of chaos in the heating industry.

However, in reading over these ordinances one cannot fail to appreciate the sad commentary on the methods and practices in use in the heating industry in general when it becomes necessary to legislate good installation work into existence.

In the Kansas City ordinance one reads this statement: "Whenever the draft or any flue built according to this Code is not sufficient the Commissioner of Buildings and Inspections shall subject the flue to a smoke test by building a smudge fire at the bottom of the flue and while the smoke is flowing freely, close the flue tightly at the top. Escape of smoke into other flues or through the chimney wall indicates openings, which shall be made tight."

What a sad pass the whole industry has come to when it becomes necessary by law to compel a man operating under the designation of heating engineer to do his work properly. It seems impossible to believe that a man putting in a warm air furnace would not take the precaution to see that an adequate flue is provided for the quick and thorough disposal of the products of combustion. Where is the pride in the perfection of workmanship? Have furnace installers, who need such legislation no shame?

Legislation seems to be the only avenue of recourse left those in the warm air heating industry who stand for the best the industry has to the public.

Random Notes and Sketches

By Sidney Arnold

The essence of humor is sensibility; warm, tender fellow-feeling with all forms of existence.—Carlyle.

When I returned from luncheon on Tuesday of this week I found that all the glass vases, pewter-covered, earthenware steins and other similar reminders of Dan Stern's numerous voyages abroad had been pressed into service. Now, wait a minute before you jump to conclusions. We were not violating the Volstead law, or even attempting to. The necessity for using all of these containers was this: You know this is peony time. The Homer Furnace Company, Coldwater, Michigan, has some very wonderful peony gardens. The plants in these gardens are in blossom now, and the big-hearted boys of the Homer organization very thoughtfully sent us an armful of the choicest, long-stemmed blooms. The card which accompanied this avalanche of beauty said, "With the compliments of the Homer Furnace Company." Everyone in our organization expressed his or her appreciation for the kind thoughtfulness of whoever it was in the Homer organization who made it possible for us to enjoy this most agreeable surprise. I have an idea it was Ros. himself, but anyway we all send our most hearty thanks.

* * *

An attractive little sheet full of "newsy" items, humorous and otherwise, found its way to my desk one day this week. Its name is the Buckeye Booster, and it is issued by the Buckeye Products Company, 7020 Carthage Avenue, Cincinnati, Ohio. I want to congratulate these people on the appearance and content of this sheet. It is certainly well worth the few minutes required for perusal.

* * *

As in Athletics

Art Podolski's wife had just presented him with twins, two bouncing youngsters, and his employer congratulated him heartily on the event. The following day he was called into the office and handed a silver cup in

recognition of the double blessing he had bestowed upon his country.

Art received the gift in a rather embarrassed manner, and then, turning to his employer, said: "Thank you very much, sir; but—er—um is this cup mine now or do I have to win it three years in succession?"

* * *

The smiling youngster in the "hurry wagon" shown in the accompanying illustration is the youngest of a group of four boys whose father is Frank F. Fischer, Woodbine, Illinois, warm air fur-



Frank Fischer's Youngest

nace installer. Woodbine, Illinois, as I recall it, is only a vurma, vurma tiny hamlet of about 200 people; nevertheless the Standard Furnace Code has found its way into the hearts of these happy folks, and Mr. Fischer has worked up considerable business in warm air heating plant installations by its use. This is certainly a good omen for the warm air heating industry, and I want to congratulate Mr. Fischer upon his progressiveness.

* * *

A humorist always treads on dangerous ground. Many friendships have been shattered due to the innocent effort to be funny, especially when personalities are involved. In the June 11 issue I referred in what

I thought was a vein of pleasantry, to a discussion over the use of fans in furnaces at the Peoria convention. I referred to "Les" Taylor, Jack Stowell and E. C. "Buck" Taylor. It now appears that my efforts were variously interpreted and I have been both praised and damned for this article.

I want to say that I value the friendship of the three gentlemen referred to most highly, and would not give my readers the impression that these men do not have the best interests of the warm air heating industry at heart at all times.

* * *

I had a most enjoyable visit from my friend, L. W. Millis, Secretary of the Security Stove and Manufacturing Company, Kansas City, Missouri, on Thursday of this week. Mr. Millis is President of the Midland Furnace Club and was in Chicago attending a meeting of that club. His work in behalf of the warm air heating industry is well known to all in that industry. Mr. Millis has something new up his sleeve which he is going to spring in a short time that will be of interest to all warm air heating installers.

* * *

Of the things that I enjoy most of all in my connection with the warm air heating industry, my visits to the shops of men in the trade affords me the most pleasure. I like to catch these men in their everyday habitats where the real work of the industry is performed, because I know that that is where the hearts and souls of these men are; that's where they live. I dropped in on my good friend, Mike Reif, of the John Reif Sheet Metal Works, 2049 Belmont Avenue, Chicago, one day this week and found Mike lending a hand on the forming machine. Mike is surely a jolly fellow and I enjoyed my visit there very much.

* * *

Charlie Merritt of the Forest City Foundry Company, Cleveland, Ohio, passed through Chicago on Friday of this week. Although I did not see Mr. Merritt, I enjoyed the chat with him by phone.

German Architect Finds Copper on Many German Building Roofs

*Has Great Praise for Red Metal
and Finds it Everlasting*

A VERY interesting article on the use of sheet copper in Germany by Professor Schulze, one of the foremost German architects who shortly before the war designed the castle Cecilianhohe, the residence of the German crown prince.

In his book, "The First Sketch of Building a Residence," and translated by J. C. Moebus, Butte, Montana, the professor says: "We cannot imagine a more beautiful roof than copper coated with the green Patina. Suffice it to give a few examples of the use of copper for roofing purposes in the German

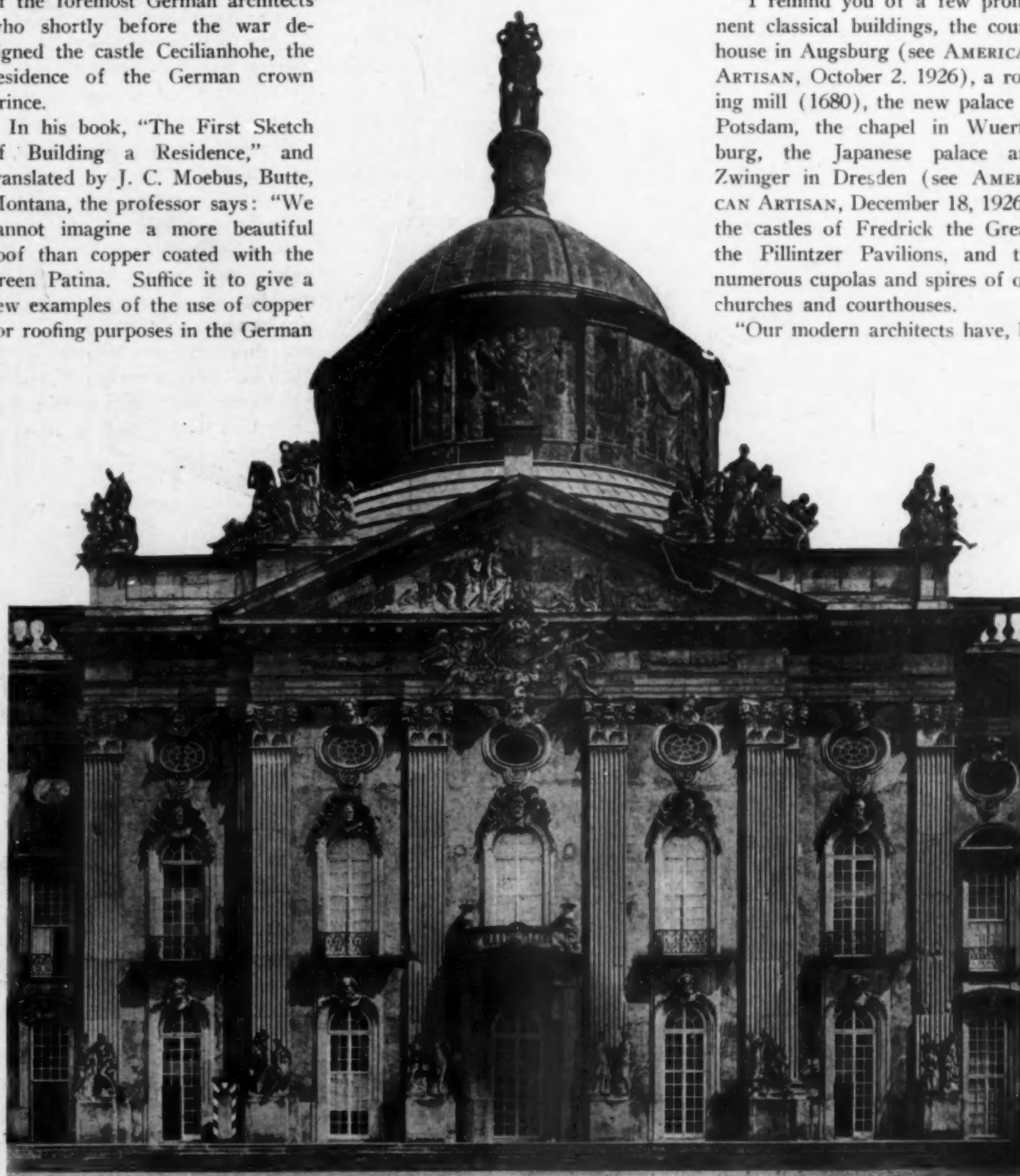
history.

"For convenience I will show buildings of other states of the con-

tinents, which are popular on account of their copper roofs of earlier days.

"I remind you of a few prominent classical buildings, the courthouse in Augsburg (see AMERICAN ARTISAN, October 2, 1926), a rolling mill (1680), the new palace in Potsdam, the chapel in Wuertzburg, the Japanese palace and Zwinger in Dresden (see AMERICAN ARTISAN, December 18, 1926), the castles of Fredrick the Great, the Pillintzer Pavilions, and the numerous cupolas and spires of old churches and courthouses.

"Our modern architects have, by



One of the Many German Buildings Roofed with Copper

the study of these old buildings, been inspired to use copper roofs, and so we find among the work of the modern building contractors of renown an endless number of buildings of all the imaginable kind covered with the above named material, viz., massive exhibition halls, industrial buildings, warehouses, villas, kinos, garden pavillions, abbeys, tombstones, museums, festival halls. No class of buildings are omitted. Without mentioning the great business advantages, and the unlimited wearing qualities, the eye is enthused with the color play of the copper sheets that in the course of years, yes centuries, get stronger in beautiful glimmering emerald green Patina.

"In a very limited time the copper roofs of our factories located in the industrial centers, where the smoke gases are so destructive, will soon be covered with the above named coating.

"Nevertheless the modern tradesman has been successful in bringing on this coating process in a far shorter space of time by using artificial methods.

"The process is very simple and cheap. This is similar to that used in (Copper Flashings), published by the Copper and Brass Research Association, also other writers (which appeared from time to time in the AMERICAN ARTISAN).

"The erection of this class of work does not require any special mechanical skill. The copper sheets are from 14 ounces (about 26-gauge) up to 3 pounds (about 15-gauge) to the square foot in weight laid on wood sheeting 1 inch in thickness.

"Some of the modern buildings of late are using fireproof plates instead of the wood sheeting. The copper sheets are put on in both the standing and flat-seam style, using cleats $2\frac{3}{8}$ inches by $3\frac{1}{2}$ inches (approximately), using copper nails only.

"It is not specially necessary to mention that the copper roof, like every other metal roof for flat as well as terraces, is one of the best materials to us to prevent the mois-

ture from entering the building through the roof.

"Sheet copper is very pliable and can be used very successfully on all the most complicated shapes of roofs, such as the Zwinger Wall-Pavilion, Church of Notre Dame, both in Dresden, Germany, and compared with slate, tile and other non-metallic substances.

Dr. Brauer also refers to the difference in weight of a copper roof, compared with slate, tile and others.

"Sheet copper is so much lighter in weight per square than slate or tile, and the cost of constructing the roof to carry the copper is a big saving over the above named roofs. Its lightness in weight, its pliability in connection with the numerous complicated shapes of roof, viz., flat roofs, spires, pinnacles, cupolas, etc., its rust resisting qualities when coming in contact with atmospheric changes and the gases from various sources, these, in connection with its long

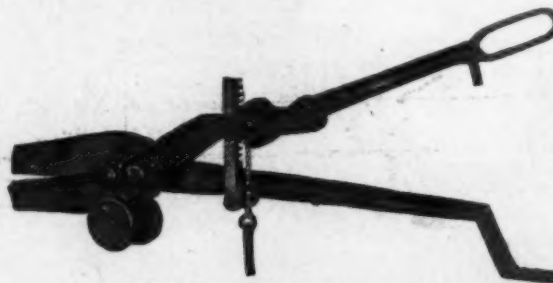
nection with copper roofing," said Mr. Moebus.

"The Europeans use methods that allow for contraction and expansion or their roofs would not stand up. Here we use the double lock or white lead or the proper prepared paint. These methods allow for expansion and contraction and are an absolute success where they have been tried."

Giant Gear Compound Shears for Cutting Heavy Sheets, Bars and Shapes

It is claimed by the manufacturers that the Giant Economy Gear Compound Leverage Shears will cut $\frac{1}{8}$ -inch thick steel sheets with but 60 pounds pressure, whereas it is stated that 145-pound pressure is required with ordinary shears. The Giant shears also cut 3/16-inch bars and shapes and round or square shapes up to 5/16 inch.

The weight of shears is 25 pounds. Length overall 36 inches, length of blade 10 inches. The



Giant Economy Gear Compound Shears

lasting qualities, with a very limited cost of upkeep.

"All these economical advantages, in addition to the high artistry made possible, put this material in that class, the use of which may appear almost unlimited."

The article on copper roofing was written by Dr. Ernest Brauer, government building master, Germany. It was sent to J. C. Moebus, Butte, Montana, who translated it from the German into the English for the benefit of those who are interested in copper roofing.

The photo of the palace of the crown prince was furnished by Mr. Moebus. The entire roof is covered with sheet copper.

"In Dr. Brauer's article we see no mention made of solder in con-

nection with copper roofing," said Mr. Moebus.

It is stated by the manufacturers that Giant shears are quickly and easily adaptable to any class of work, light or heavy.

Its design makes cutting large, heavy sheets on the floor an easy and quick process. The wheels attached to the lower jaw in combination with stationary foot member, permits the shears to be easily and smoothly moved along as the cut progresses.

Anyone wishing more information may obtain an illustrated circular which also shows proof of pressure tests, by addressing the Chicago Experimental & Manufacturing Company, 1403 North Park avenue, Chicago, Illinois.

Some Sheet Steel Roofing Incidents and Repairs

By L. S. BONBRAKE

OFTENTIMES skylights, scuttles or chimneys are so placed in relation to the roof that it is a hard

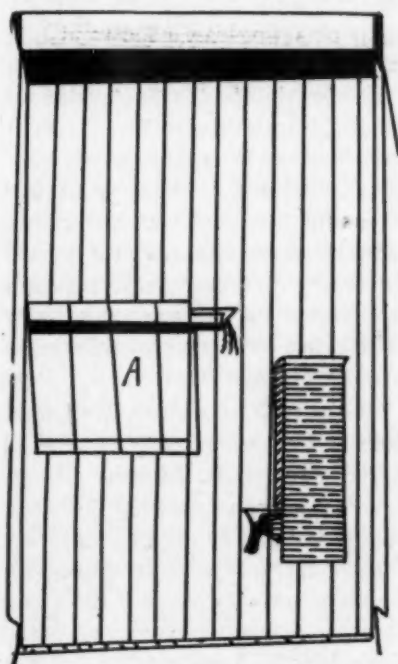


Figure 1

matter to get the water around them when the roof is laid standing seam. Fig. 1 illustrates a skylight and one chimney. A water-table is suggested for each, made from galvanized iron or tin as preferred. A three-cornered, tapered wood strip, as No. 1, Fig. 1, is carried from the fire wall, the length of the skylight, "A," and past its corners, where it empties out upon the roof. No. 2 will divert the water to both sides of the chimney. It is important, and care should be taken to observe these suggestions and help get the water straightened out on the roof again. If there is no pitch from one end or the center both ways, the roof may sag, when there will be a dead water stand back of the obstruction until dried out by the sun, a process very harmful to metal. If the obstruction is near the center, a V-shaped flash may be used or, in the case of a lengthened out space, where it is necessary to have the water all diverted one way, a 1x3-

inch board may be used to construct a small channel acting in the same way as a regular roof gutter. This may be taken in as part of the obstruction flash and carried on, the water caught thus flowing out upon the roof again, eventually reaching the eave. Occasionally a chimney is found built half-way in the roof with the balance outside. In such a case we suggest hanging the trough on the clear end of the eave, closely abutting the chimney. The balance

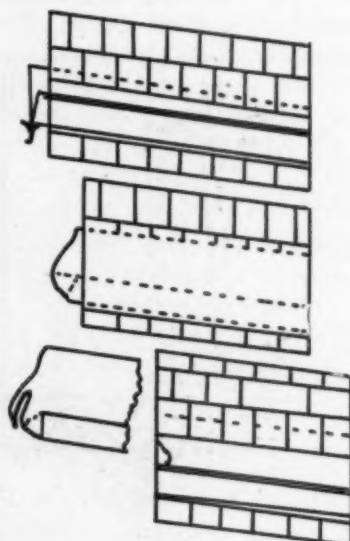


Figure 2

of the roof water is caught by the top chimney flash which extends on out to the gable, the opposite end, slightly past the chimney, so that the water may empty onto the roof from whence it will flow into the eavestrough. Galvanized iron will answer nicely for the purpose of a water-table back of an obstruction. The corners then can be soldered, also seams or other locations where necessary.

Patch for Steel Roof

To redeem a steel roof that has been almost ruined by neglect in painting and otherwise, sweep its surface thoroughly to eliminate all dust and dirt. Use a wire brush to loosen all paint blisters and rust spots, and coat the weak looking

spots with a thin layer of roof cement. When a large hole or badly rusted spot is found in a roof sheet, cut out to good steel and insert a patch, as shown in the sketch, Fig. 3. This sketch illustrates an insert made from a piece of the steel from which the roof was made or similar, to be used where a square-cornered hole has been cut out around the damaged portion of a neglected steel roof. The sides and top edges of the sheet around the hole are formed up at a right angle $1\frac{1}{4}$ inches high. The bottom edge is $\frac{3}{4}$ inch high. The metal insert is flanges. The sides and the top flanges of insert are formed up $\frac{3}{4}$ inch and the bottom $1\frac{1}{4}$ inches. Then the bottom insert flange is seamed over the sheet flange and malleted forward smooth and tight now cut to fit snug into these

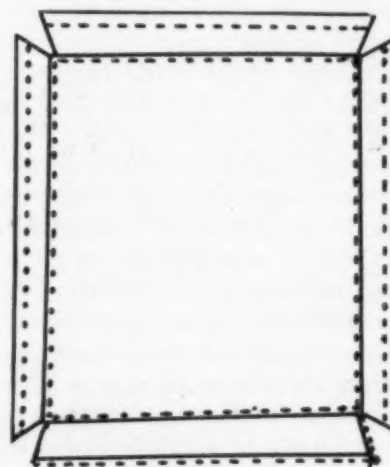


Figure 3

where the roof water will flow over the seam instead of against or into it. The top and side flanges are treated in like manner and when all have been completed, finish by cementing with a mixture as follows: Oxide of iron (druggist's) mixed to a dry mass with coal tar; thin slowly by adding boiled linseed oil until the consistency of glazier's putty. After the roof has been thoroughly cleaned and bolstered up, use yellow ochre or graphite paint to coat it—

not some mail-order house coal tar preparation. Coal tar alone will eat the life out of a thin sheet of steel. Use $8\frac{1}{2}$ lbs. of yellow ocher to 1 gallon of boiled linseed oil and nothing else for good outside work. Spread the paint on with a small, 4-inch brush and brush it in well for best results. Graphite and oxide of iron are good roof paint fillers,

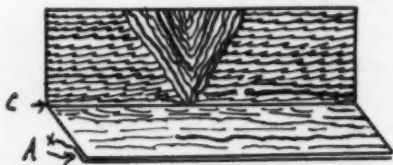


Figure 4

while yellow ocher has excellent wearing and protective qualities.

Solid Formed Ends for Roof Gutters

An annoying situation frequently presents itself when the carpenter is roofing a barn or shed, and oftentimes a dwelling house in the country, and is placing a roof gutter in the roof, when he is unable to get a tinner on the job to solder up the ends on the gutter in order to get control of the water. Steel cannot be soldered, hence when an end is necessary it is well to know how to make one without solder when on the job. Knowing that steel of the lighter gauges (27 to 30) could be formed into almost any shape very readily, I experimented until I produced a perfectly solid end made from the gutter itself by using the method employed in forming the corner on a black iron drip pan. As this later will not leak hot grease, there should be no apprehension or fear of water leaking. The metal is formed and laid back of the fascia board, No. 1, Fig. 2, with the 5-inch projection, "Y," in the usual manner. This end is sheared with a sweep similar to No. 2. Then, with a long-pronged set of pliers, fold the metal up and inward as indicated by the dotted lines. If pliers are not at hand, a bevel-edged board may be used to drive the metal up and inward. When the metal has been raised half way or more toward perpendicular, the hands may be used to even and

straighten out the two folds shown at the top edge of the end, No. 3. This fold may be hammered tightly together after this end has been pressed up to a perpendicular, but care must be taken not to mash these folds tight in the corner at the bottom or the metal may crack or break on the short curve. Let the folds spiral up for an inch or so from the corner in the bottom of the gutter. When the end folds have been flattened and finished, the top of the end may be sheared in a pleasing curve.

Cracked and Split Seams—Crimped Edge Flash

One of the prolific sources of trouble and annoyance for the tinner or repair man in sheet metal roofing is split or cracked seams. This

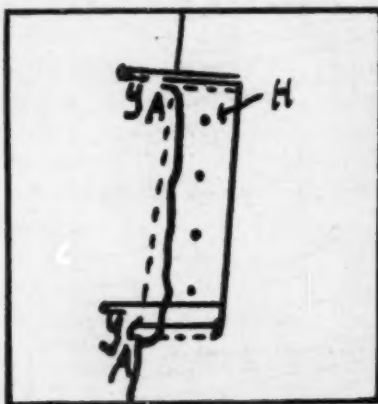


Figure 5

character of work is usually done in the same haphazard manner from year to year, piling new solder on top of the old, to go back and do the same thing over again next year. As a suggestion, we advise trying another method next trip, and believe you will then lose sight of Schmachtenberger's old porch roof (see Fig. 5). Remove all the old solder, dirt, rust and paint from around the broken portion of the seam, "X." Open up the seam a quarter inch on each side of the split to reach solid metal. At the shop, cut $1\frac{1}{4}$ inch strips of metal from a closed hem, $\frac{1}{8}$ -inch "Y," on one edge and $\frac{1}{4}$ -inch hem, "A," on the opposite edge of the strip. The narrow fold may be closed by clamping down the folding machine. Leave the wider hem open as it comes from the machine. Set the folding gage

back to one-half inch, place the narrow hem in the folder, hem up, and form the strips at a right angle half an inch wide.

On the job, cut the strips to lengths that will fill in the opened-up seam, enter the hem, "A," into the crack or split, then close nail the strip as indicated by "H." Mallet the half-inch angle down over the split, obviating raw edges and giving a strong "blind-nailed" patch that will "stay put." This makes an admirable patch for a black iron or steel roof, or a rusted tin roof beyond soldering. When smoothed over and bolstered with the elastic adhesive cement, it cannot leak, will never dry hard and crack, in fact, a film forms over the top while under it appears soft and pliable years after it was first used.

If the type of steel flashing herewith illustrated by Fig. 4 is used for covering over the ends of slate or other shingles abutting against a higher building, a deck or other obstruction, it will not buckle nor kink on its outer edge as will the plain, flat metal almost universally used for this sort of work. This flashing, with a quarter-inch hem, is shown at "A," forms a complete fold back under the metal at its edge and stiffens same into a uniform straight line which is reinforced by a slight bend with the tongue at "X" im-

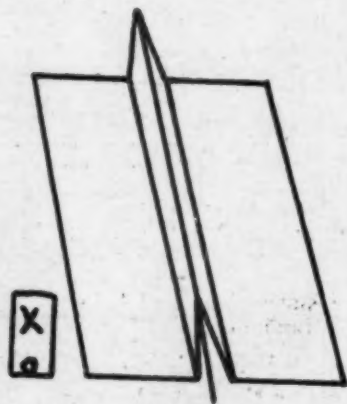


Figure 6

mediately back of the hem, "A." If the corner bend, "C," is given slightly less pitch than that of the roof to be flashed, it can be made to bind down more firmly upon the shingles when the back, "C," is forced down into place. This may

be made in the tin shop or can be made with tongs on the job.

Tightening Lose Seams

The illustration, Fig. 6, indicates the best method we know of for drawing a seam or seams of a metal roof down tight onto the sheeting when it has become loosened by suction, careless, loose nailing, or the cleats too far apart. The nail may go through the hole in the strip, "X," and can be forced back over the nail head and cemented when nailed. If a double seamed standing seam, use a scratch awl to punch the hole in the top of the seam, and then feel around carefully to find if the awl is going straight down into the sheeting—not giving a sudden veer and striking the seam so as to come from between the flanges and appear outside on its way down through the roof.

Apparently some tanners are continually making the complaint that their steel roofing makes too much noise and rattle. One especially, making this grievance, was covering a building in town with steel sheets. I proposed going with him to the building and looking over that part of the roof which had been laid. As a result I found he was nailing most all of his anchors near two feet apart instead of 12 to 14 inches. The standing seam was capped, giving an easy egress for wind on each side of the seam. The difference between that seam and a double-seamed standing seam was pointed out to him, also width of anchor spacing, and explained that all these minor faults were contributory to a greater one. He appeared to understand the idea, but not knowing of any make of a double-seamed standing seam steel roof, I could not refer him to a manufacturer of one. I know of several double-fold makes in steel roofing but none that are double seamed. It was suggested that he use a piece cut from the roofing he was laying, to see if it would stand double seaming. We gave it a severe test and it failed to stand up under the trial. Then it was suggested writing to one of the manufacturers of a double-fold steel roof and learn if they did not use

a somewhat more flexible grade of steel. I know we fabricated steel sheets in Decatur, Illinois, in the 90's and the steel we used would double seam as readily as tin. The gauge was 28, never a crack or break in standing seams, double fold, or in the diverse forms and bends made. Why would not a double-seamed standing seam steel roof be as popular in steel as in tin and be used generally?

Its opposition, we certainly believe, is from the fact it is the cheapest metal roof that can be bought, and the dealer wants no more expense attached to it in the installation than can be avoided. That is poor practice for a man of business, a fly-by-night theory, and one certain way to *avoid* building up a trade having permanency. Even a double-fold standing seam will not keep the water out of the seam after a heavy snow, when the snow begins to melt, and the roof is laid on a comparatively flat surface. We are sure of this because we have seen a large double-fold steel roof have its seams malleted down flat on the roof and a tar and gravel roof laid over it, caused by snow melting and the water working its way through the seams.

To avoid leaks through the seams, men with shovels were sent on top of the roof to throw the snow off. They not only did that but also riddled the steel roof with holes, and at the next similar occurrence it leaked as a sieve. After which the transformation occurred. For that reason we have advocated a 1/12 pitch for a flat surface and at least 1/4 pitch for a comb roof. If a capped roof will answer on a slight pitch surface, what can be the objection to a V-crimp roof, that is nailed from the top of the V seam, or a 2½-inch corrugated iron roof that is nailed from the top of the corrugations?

The several individuals deeply interested are making a strenuous effort for better conditions for the avocation all the time, and we hope we may see the day when 27-gage is used with a double-seamed standing seam exclusively on a near flat

surface. Then the trade will have something of known permanency that it can build up an enduring trade upon. The difference between the original cost of steel roofing and higher priced roots is so great that the interest on that amount will far more than pay for all the painting necessary on the steel roof and all the repairs needed, if any, during its lifetime, moreover there will be interest money yet on hand.

Chicago Solder Company Begins Big Advertising Campaign—Tie Up With It!

The Chicago Solder Company, 4201 Wrightwood Avenue, Chicago, makers of the Kester self-fluxing solder, have recently released a broadside poster representing the opening gun in the \$100,000 advertising campaign which they are putting on to popularize Kester solder.

In order to assist the sheet metal contractors and hardware dealers in tying up with this big advertising campaign, the company has prepared salesman's helps, dealer helps, selling literature and other sales stimulants. These can be had by writing to the Chicago Solder Company, 4201 Wrightwood Avenue, Chicago, and making known your wants.

Honeywell Heating Specialties Soon to Occupy Two Newly Acquired Plants

The Honeywell Heating Specialties Company, Wabash, Indiana, will soon be operating two recently acquired new plants giving an increase of 26 per cent in manufacturing floor capacity.

The volume of orders being received for this company's products indicate a large prosperity for the heating industry; and a 35 per cent increase in its personnel, over last year, is contemplated.

Reed Air Filter Co., Louisville, Kentucky, Moves Chicago Headquarters

Reed Air Filter Company, whose Chicago branch was formerly located at 140 South Dearborn Street, announces its removal to 228 North LaSalle Street.

Developing Pattern for the Construction of a Compound Elbow

Responding Inquiry of a Subscriber for Compound Elbow Made in Several Pieces

By O. W. KOTHE, Principal St. Louis Technical Institute

SOME time ago a subscriber asked how to make a compound elbow and he also inquired if it were possible to make a compound elbow in several pieces for sheet metal duct work.

Now, I will say that it is decidedly more simple and easy to make a compound elbow in several pieces than it is in one part. A compound elbow is nothing more or less than two 90-degree elbows, which can be assembled in center or left in the patterns so both elbows will make a double turn. There are many workmen who use two elbows for making compound turns and in unexposed work, as in attics or hidden parts of basements, etc., it serves its purpose just as well. But where the work is exposed it is often more artistic to make double elbows in one piece, thereby making compound turn.

To develop a compound elbow in one piece for each side, we work on the basis that the one side gives length and the other gives the width, so we draw the plan and the elevation to conform with our measurements. Sometimes a larger radius is used and other times the sections are also transformed to take on different measurements than merely rectangles reversed. But such are mechanical details that must be applied and can readily be overcome in one or several ways.

Now, observe that in passing lines from our elevation view through the plan it is as though we have parallel planes through each line, or in other lines as though you draw a line square to the position shown clear around the fitting in each place. It is, therefore, enough to draw lines through at random since it is more important to place the lines so they will enable getting greater accuracy in certain curves,

where lines can be placed closer together than if an equal number of divisions were made.

So, to lay off the pattern, we pick

the girth along the side I, as A-B, and set it as in pattern I for heel as A'-B'. From each of these points we erect lines and then from each

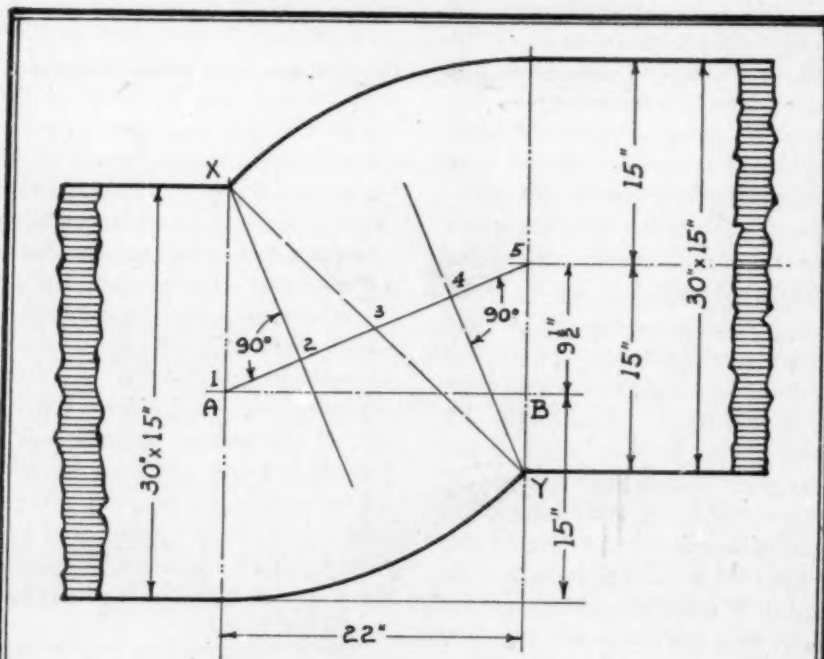


FIG. 1

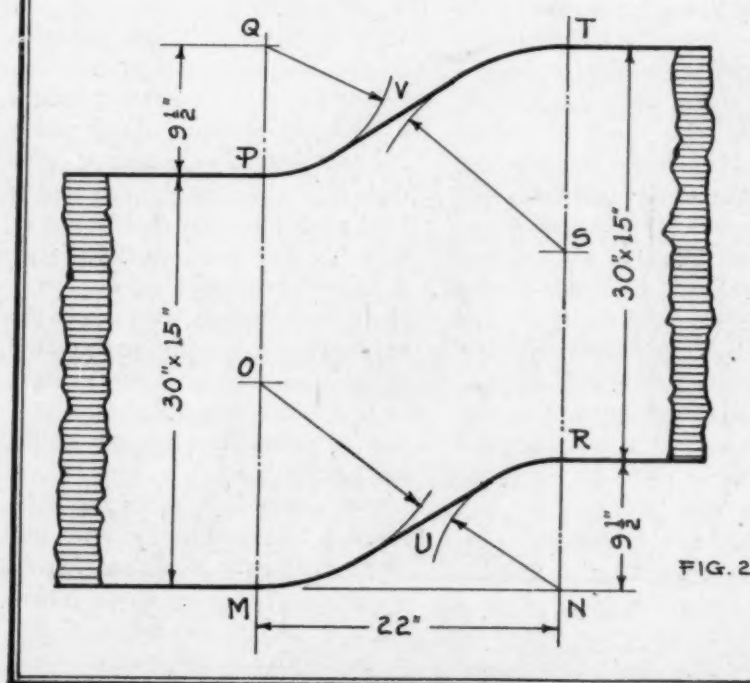
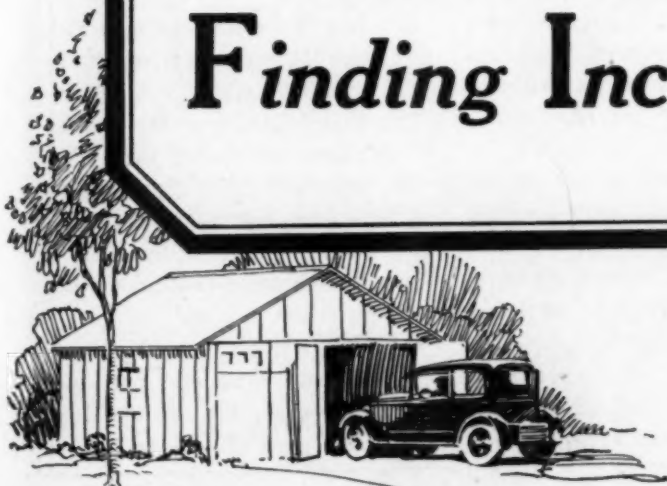


FIG. 2

Patterns for Compound Elbow

Steel Garages are Finding Increased Favor



Ready to anchor to wood or concrete base.
Quickly put up.



SHEET STEEL is coming into ever greater use. Right now a large percentage of the new garages erected are of steel. Now is the time for progressive sheet metal men to branch out into this profitable new phase of the sheet metal business.

Many Buckeye agents are selling over one hundred steel garages each year. Buckeye all-steel garages sell easily because they are *good looking* as well as substantial, weatherproof, and fireproof.

You need not invest a cent to get into this profitable business. You show the prospect photographs, blueprints, and samples of material. We ship the buildings as you order them.

THE THOMAS & ARMSTRONG CO.
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We have only one agent in each city. Don't wait until someone else is firmly established in your territory. Begin selling Buckeye garages now. Every parking lot needs one or two for overnight customers. Many factories buy multiple garages to house the cars of employees. Get the agency. Use the coupon below today.

BUCKEYE STEEL GARAGES

THE THOMAS & ARMSTRONG CO., DEPT. A. A., LONDON, OHIO.

Please send me a description of Buckeye steel garages and buildings, and quote prices and terms to agents.

NAME ADDRESS

Say you saw it in AMERICAN ARTISAN—Thank you!

point where vertical lines cross plan in throat E-F and also the heel G-H we carry over horizontal lines to cut off these lines in pattern of similar number.

To develop pattern for throat of elevation II we pick the girth C-D and set it to left of plan, as C'-D', and erect lines as before and then project points over from plan which gives the proper width of pattern as well as length. Now to develop pattern for throat of plan III we pick the girth E-F and set it as E'-F' and then drop stretchout lines after which lines are carried over from the throat and heel of elevation used, which enables sketching lines through all points where lines intersect and you have pattern for side III.

But in making these elbows, some trouble is met with in assembling, and so the best method is generally either to rivet them, as M, or to double seam them, as at N. There are also other methods of doing this, as on heavier work the edges can be welded. There is also a type of hammered lock that can be used with some satisfaction.

In shaping these patterns up the elevation and plan outlines should be used as a template in order to bring the approximate shape as this will make easier working for assembling. Elbows of this kind with a large radius in throat are more conveniently handled than those with a short radius, owing to the double twist that must be made in the turn between the two elbows.

In making these elbows out of more pieces, as our sketch shows in 4 pieces, only a part elevation or plan need be drawn, as we show at P and Q. These views also become patterns for those portions of the elbow and all that is necessary is to lay off the throat and heel, which are straight strips and which can be assembled by means of hammered lock O. When these several parts are assembled it is then possible to cap strip each part of an elbow on the job in position, which is especially advantageous for large work since fittings of this kind are always more or less awkward to handle.

Another Short Cut to Elbow Pattern Cutting Is Given

Pennsylvania Sheet Metal Man Gives Pointers on His Methods

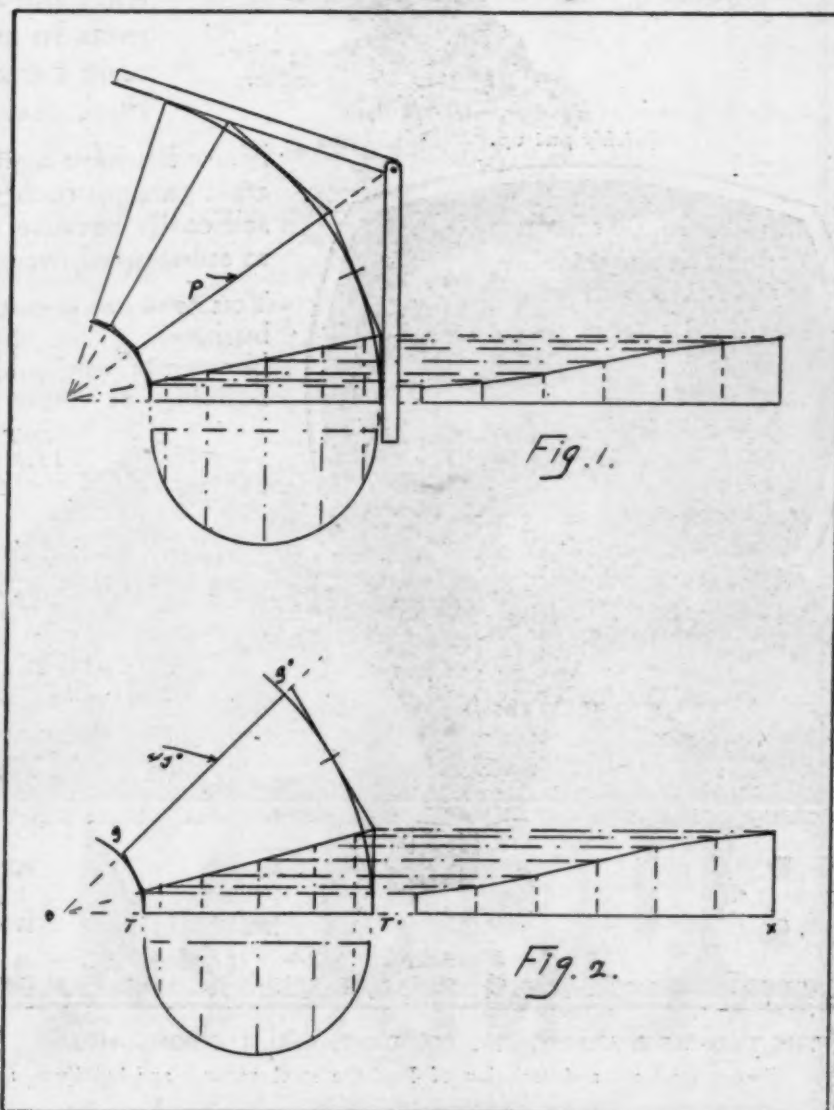
By W. S. GROVE, Penbrook, Pa.

IN reply to Fred. Schuster's short cut on elbow pattern cutting in a recently published issue I want to say, why not reverse the procedure and draw the elbow in its proper place, showing the throat radius, also the gores, as they would appear in the finished pipe. This would give the beginner a scientific rule, and full-fledged mechanic alike, and equally as short.

Figure 2 shows all the drawing necessary to lay out a 90-degree elbow of any number of pieces. In

this case a 4-pound gore, 8 inches (Figure 2) represents one-half of the finished elbow, 90 degrees. Draw any line, o x from o to t. Determine the throat radius, then the diameter of the pipe as shown. With o as center, sweep out its throat, also hole radius, of any length so that the 45-degree triangle will cut them at g g'.

Divide the arc g' t' into three equal parts. The first part represents the miter cut; the other two, one full gore or one-half of the



Illustrating Mr. Grove's Idea

Linde's welding handbooks

In the early days, many a mile of concrete sidewalk crumbled because it was poorly laid. Now concrete sidewalks will last twenty years because people know and have been taught how to build them.

With Oxwelding there is a similar story. Linde has worked out methods and detailed instruction for all the common applications of welding and cutting.

Suppose a Linde customer writes in to ask about cast iron welding. Originally complete instructions were sent to him in a letter. Then, as many customers wanted information on the same subject, a book was printed, for mailing on request.

In this manner a Linde library has grown until it now numbers fifteen volumes, each devoted to one application of oxy-acetylene technique process. They are free to Linde customers as a part of Linde service.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

General Offices: Carbide and Carbon Building

30 East 42d Street, New York

37 PLANTS 107 WAREHOUSES



LINDE OXYGEN

Mention AMERICAN ARTISAN in your reply—Thank you!

elbow, including the end gore.

Figure 1 shows the same elbow, however, in a different angle. Shift the bevel so as to get the desired throat radius (which is the same as in Figure 2). Draw the line P to the converging point of the bevel. Sweep out these arcs of heels and throat, cutting line P. Divide the heel arc into three equal parts as before explained, thus completing Figure 1.

It has been stressed very strongly

in the same article on figuring circumferences. The rule diameter times 3.1416 equals circumference. I want to state right here that we get the same accurate results by cutting off the two right hand (.) points. For instance, we take the diameter of 28 inches $\times 3.14 = 87.92$ inches $= 87 \frac{15}{16}$ inches — 28 inches $\times 3.1416 = 87.9648 = 87 \frac{15}{16}$ inches $+$. As close as we can get with one-third of the figuring.

Another development which is a logical outcome of the quick turnover idea is the "release authorization." Its makers consider it one of the best ideas their purchasing department ever hit upon. An order is placed, based on longest price protection possible for a quantity of materials to be released as needed. The vendor who gets such an order protects himself in his purchases, but no actual shipments or manufacturing is authorized except by "releases," and then only for 30 days' supply.

It would seem at first blush as if the low inventory idea would raise express charges enormously, but by careful records and close watching it has had just the contrary effect. In one month where millions of dollars' worth of merchandise were received express charges amounted to only \$17.33.

This low express expense is attained by making each buyer responsible for the delivery of his particular material. The items must be supplied as needed. That is his job. Sometimes material will go bad, in which case an express shipment may be considered unavoidable. But freight normally takes care of all requirements as all material movement is planned ahead.

The plan of carrying a low inventory has developed among buyers a keenness and interest not apparent when larger orders were placed. The man who knows he hasn't much material ahead follows up himself. He is on his toes every minute. He doesn't go to sleep and suddenly waken to find a shortage. One company claims never to have experienced a shortage since the policy was adopted.

The fundamental idea of the whole plan is that they want suppliers to "come and go" with them on production. The two big errors in buying for a manufacturing plant are "not enough" and "too much." One or the other is responsible for many manufacturing troubles. The quick turnover idea is eliminating both these troubles in many plants.

(To be continued)

What Is Best for Consumer Will Be Developed

Consumers' Needs Good Criterion to Judge of How to Succeed in Business

QUICK turnover in hardware has assumed as great an importance in modern manufacturing success and safety as it has been conceded in retailing. Indeed, in manufacturing it ranks higher today in importance than it has ever ranked among its most enthusiastic retailer advocates, and that is saying a great deal.

Every shrewd manufacturer has recognized the advantages of quick turnover. Never has it been lost sight of, but today quick turnover stands at the very top of the list and in almost every big factory there is a highly organized staff of executives whose duty it is to blazon on the minds and hearts of every other executive, by precept, by example and by the big unstuffed club if necessary, a thorough and immediate appreciation of the wisdom of bowing before the demands of "Quick Turnover." And the facts are that if quick turnover and the new methods that it is entailing are not welcomed with open arms, and if the processes and factory equipment, mental and physical, are not tuned up to the quick turnover idea, the results are unprofitable for all concerned.

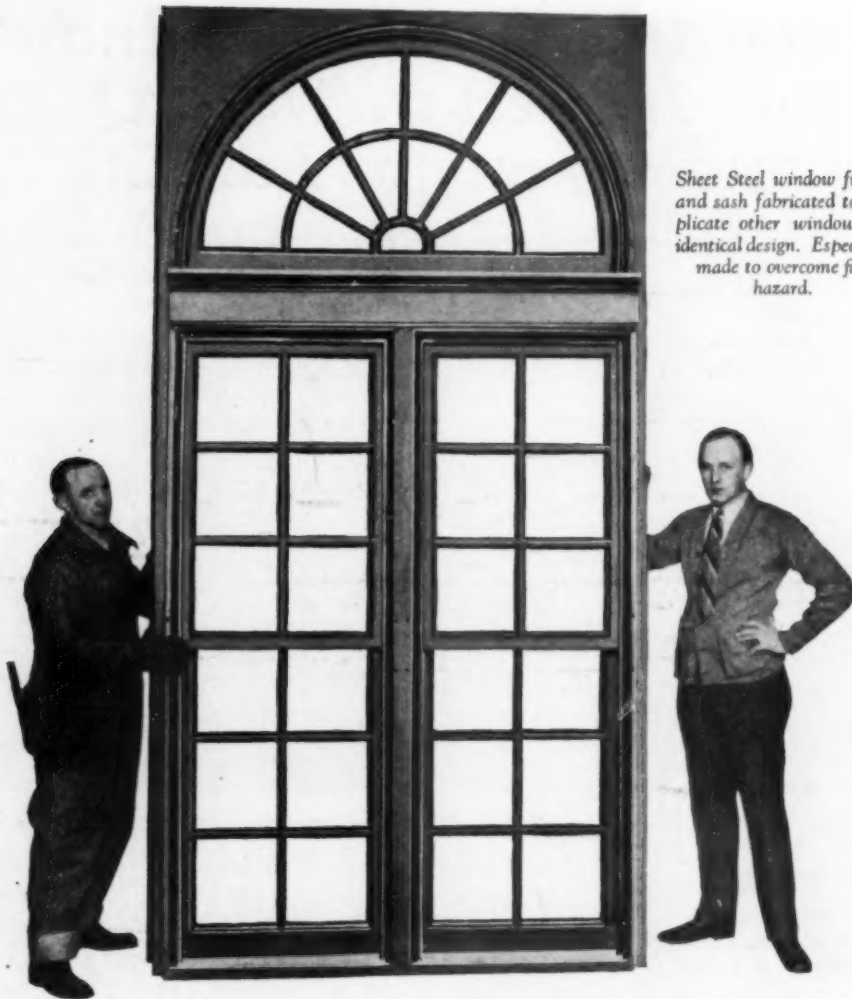
The keynote of today's idea is to make the shortest possible time between the receiving and shipping room doors.

In one plant turnover is not sim-

ply a credo but a fact, as nearly as the manufacturer can make it so. One great manufacturer regards its viewpoint in this respect as of first importance. It has multiplied the power of its capital many times. The savings effected served to point the way to still other savings which have been reflected in greater earnings and in lower prices.

In this company a premium is placed upon low stocks, both on order, in transit and in the factory. It has considered that a 30 days' supply of any material is a maximum supply. Having more material than that on hand is deemed a cause for immediate investigation of any department. At the end of each working day an inventory is made of the exact quantity of material in terms of a day's full production, that is, whether materials are available for ten days, five days or one day. A study of this firm's daily inventory showed an amazingly large number of items with only two days' supply ahead.

Yet this condition is not considered dangerous, as it might have been rated years ago. The danger of having dead stock is considered far more formidable. According to an executive, an item on which 42 days' supply was shown had been investigated and systems worked out so that a 42-day supply could not occur again.



Sheet Steel window frame and sash fabricated to duplicate other windows of identical design. Especially made to overcome fire hazard.

IN SHEET STEEL, the sheet metal contractor has the most versatile material available to him. Anything that can be made of sheet metal can be made of Sheet Steel. Under the hand of the sheet metal worker, Sheet Steel lends itself to an almost endless range of structural possibilities—everything from the conventional furnace pipe and fittings to the most elaborate architectural units can be readily fabricated from Sheet Steel at costs which automatically give it the preference over other materials. For particulars, write the SHEET STEEL TRADE EXTENSION COMMITTEE, OLIVER BUILDING, PITTSBURGH, PA.

SHEET STEEL



This trade-mark stenciled on galvanized Sheet Steel is definite insurance to the buyer that every sheet so branded is of prime quality—full weight for the gauge stamped on the sheet

—never less than 28 gauge—and that the galvanizing is of the full weight and quality established by the SHEET STEEL TRADE EXTENSION COMMITTEE specification.

When writing mention AMERICAN ARTISAN—Thank you!

Production and Sales in Steel Industry Are Down—Interest in Third Quarter Requirements Lacking

Pig Iron Market Is Quiet—Easier Tone Noted in Nonferrous Metal Market

DEMAND for finished steel has shown further contraction in the past week. Summer dullness appears to be coming on, automotive schedules are lighter pending announcement of new models and tonnage involved in recent freight car orders has not yet been placed.

Steelworks operations have been synchronized with reduced bookings. Steel corporation subsidiaries have dropped enough capacity to reduce their steelmaking rate from 87 to about 80 per cent, while the average for the entire industry is down to 75 per cent. Even so, output of steel in June will probably approximate that of last June.

Interest in third quarter requirements, while broadening moderately, falls below expectations. Price weaknesses in heavy finished products has deterred some users from committing themselves.

Pig Iron

At Pittsburgh due largely to the fact that pig iron users have not taken out their iron as expected they have enough coming to them to last a month or two in the third quarter. Hence inquiries for that period are practically absent.

Pig iron shipments, however, have improved slightly. A few spot market inquiries are pending for single carloads to 200 tons. Malleable is selling at \$18 to \$18.50, valley, while the minimum on No. 2 foundry is \$18.50.

More third quarter inquiries are developing at Chicago. Several important ones are out, including 2,000 tons of malleable for a district melter, and 400 tons of foundry iron.

Several hundred tons of silvery iron has been closed for Michigan melters and 200 to 300 tons of charcoal iron has been sold in this dis-

trict. Silvery iron is firm at the Jackson county, Ohio, schedules, while charcoal iron is steady at \$24, base. Furnaces are obtaining \$20, Chicago furnace, for No. 2 foundry and malleable, except in outside competitive districts.

Hand-to-mouth buying continues in the pig iron market at Birmingham.

No verification is to be had of a sale of a round tonnage on basic iron at a concession in this district. Nine blast furnaces are on foundry iron, ten on basic and one on special iron.

Copper

Copper has slipped off in an idle market the past few days, not because producers in general have been pushing the metal but because here and there a lot was offered down and then some producers became willing to accept shaded bids. The metal available in this way was more than equal to the light demand.

Deliveries of copper have been running larger than average in the past few months, but the electric industry is taking wire and bus bar at a little lower rate than last year.

Tin

The outstanding fact in the tin market is the extreme premium of about 2 cents that persists on nearby metal over July arrival. Supplies available this month in the domestic market are unusually light. The visible supply of the world increased last month and unusually large shipments from the Straits are expected this month but the level of forward positions has been fairly well maintained.

Some dealers have been short on June tin and that is an important reason for present strength. At the same time it has appeared in the past week or two that consumers were not well protected beyond

June, and so the importers and those who have held tin have been able to turn the market to their advantage lately despite more liberal statistics in a period when consumption is a little light.

Zinc

In the past few days zinc has changed a little, being alternately easy and firm. In the past two weeks or so it has recovered about one-fourth cent from the low point.

Buying has not been much more active, but the Joplin mines have curtailed output and have been unwilling to sell very much ore at the current prices.

Deliveries of zinc in the last half of May increased after having been unusually light. This has been a factor in the recovery. High grade zinc has shown practically no change for a number of weeks.

Lead

Some lead has been sold at a premium in the past week or ten days and the market as a whole has done more business in proportion to the length of time than in any other period for quite a while.

Solder

Chicago warehouse prices on solder are as follows: Warranted 50-50, \$41.50; commercial 45-55, \$38.50; plumbers', \$35.50, all per 100 pounds.

Old Metals

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, \$16.50 to \$17.00; old iron axles, \$20.00 to \$20.50; steel springs, \$14.25 to \$14.75; No. 1 wrought iron, \$11.00 to \$11.50; No. 1 cast, \$14.00 to \$14.50, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 9 cents; zinc, 3½ cents; case aluminum, 13¾ cents.



This "Detroit News" model home called for twenty duplicates. ARMCO Ingot Iron was used for all sheet metal work

—and among other quality materials ARMCO Ingot Iron was chosen



Back of the triangle the institution — for more than a quarter of a century makers of special analysis iron and steel sheets for exacting uses

THIS model home—built as an experiment by the Detroit News—proved so popular that twenty duplicates were erected. ARMCO Ingot Iron played a prominent part—it was used for all interior and exterior sheet metal work.

No time was lost in the sheet metal construction of these twenty-one houses — ARMCO Ingot Iron is ductile and easy to work. Future repair bills will be the lowest these fortunate home owners have ever known—ARMCO Ingot Iron, because of its purity, is far more rust-resisting than ordinary iron and steel.

So it goes, with ARMCO Ingot Iron always in the ascendancy—the choice of the contractor and home owner who think of sheet metal in terms of permanence—and economy.

ARMCO Distributors Association of America
Executive Offices: MIDDLETOWN, OHIO

ARMCO **INGOT IRON**
TRADE MARK The Purest Iron Made

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Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

METALS

FIG IRON

Chicago Fdy., No. 2.....	\$20 00
Southern Fdy., No. 2.....	24 01
Lake Superior Charcoal.....	27 04
Malleable	20 00

FIRST QUALITY BRIGHT TIN PLATES

IC 20x28 112 sheets.....	\$25 10
IX 20x28.....	29 60
IXX 20x28 56 sheets.....	16 20
IXXX 20x28.....	17 55
IXXXX 20x28.....	18 95

TERNE PLATES

IC 20x28, 40-lb. 112 sheets	\$26 00
IX 20x28, 40-lb. 112 sheets	28 50
IC 20x28, 25-lb. 112 sheets	21 75
IX 20x28, 25-lb. 112 sheets	24 25
IC 20x28, 20-lb. 112 sheets	20 00
IV 20x28, 20-lb. 112 sheets	22 50
IC 20x28, 15-lb. 112 sheets	18 50

"ARMCO" INGOT IRON PLATES

No. 8 ga. up to and including	
1/4 in.—100 lbs.....	\$4 55

COKE PLATES

Cokes, 80 lbs., base, 20x28	\$12 60
Cokes, 90 lbs., base, 20x28	13 80
Cokes, 100 lbs., base, 20x28	14 00
Cokes, 107 lbs., base, IC	
20x28.....	14 30
Cokes, 135 lbs., base IX	
20x28.....	16 40
Cokes, 155 lbs., base, 56	
sheets.....	9 20
Cokes 175 lbs., base, 56	
sheets.....	10 05
Cokes, 195 lbs., base, 56	
sheets.....	10 90

BLUE ANNEALED SHEETS

Base 10 ga.....per 100 lbs.	\$3 50
"Armco" 10 ga.....per 100 lbs.	4 00

ONE PASS COLD ROLLED BLACK

No. 16-20.....per 100 lbs.	\$3 75
No. 22.....per 100 lbs.	3 90
No. 24.....per 100 lbs.	3 95
No. 26.....per 100 lbs.	4 05
No. 27.....per 100 lbs.	4 10
No. 28.....per 100 lbs.	4 20
No. 29.....per 100 lbs.	4 25
No. 30.....per 100 lbs.	4 45

"ARMCO" GALVANIZED

"Armco" 24.....per 100 lbs.	\$6 15
-----------------------------	--------

GALVANIZED

No. 16.....per 100 lbs.	\$4 30
No. 18.....per 100 lbs.	4 45
No. 20.....per 100 lbs.	4 60
No. 22.....per 100 lbs.	4 65
No. 24.....per 100 lbs.	4 80
No. 26.....per 100 lbs.	5 05
No. 27.....per 100 lbs.	5 15
No. 28.....per 100 lbs.	5 30
No. 30.....per 100 lbs.	5 70

BAR SOLDER

Warranted	
50-50.....per 100 lbs.	\$41 50

Commercial	
45-55.....per 100 lbs.	38 50
Plumbers.....per 100 lbs.	35 50

ZINC

In Slabs.....	\$ 8 50
---------------	---------

SHEET ZINC

Cash Lots (600 lbs.).....	\$11 75
Sheet Lots.....	12 75

BRASS

Sheets, Chicago base.....	17 1/2 c
Mill Base.....	18 c
Tubing, brazed base.....	26 1/2 c
Wire, base.....	18 1/2 c
Rods, base.....	15 1/2 c

COPPER

Sheets, Chicago base.....	21 1/2 c
Mill Base.....	20 1/2 c
Tubing, seamless base.....	24 1/2 c
Wire, No. 9, B & S Ga.....	17 1/2 c
Wire, No. 10, B & S Ga.....	17 1/2 c
Wire, No. 11, B & S Ga.....	18 1/2 c
Wire, No. 12, B & S Ga.....	18 1/2 c
Wire, No. 13, B & S Ga.....	18 1/2 c
Wire, No. 14, B & S Ga.....	18 1/2 c
Wire, No. 15, B & S Ga.....	18 1/2 c
Wire, No. 16, B & S Ga.....	18 1/2 c
Wire, No. 17, B & S Ga.....	18 1/2 c
Wire, No. 18, B & S Ga.....	18 1/2 c
Wire, No. 19, B & S Ga.....	18 1/2 c
Wire, No. 20, B & S Ga.....	18 1/2 c
Wire, No. 21, B & S Ga.....	18 1/2 c
Wire, No. 22, B & S Ga.....	18 1/2 c
Wire, No. 23, B & S Ga.....	18 1/2 c
Wire, No. 24, B & S Ga.....	18 1/2 c
Wire, No. 25, B & S Ga.....	18 1/2 c
Wire, No. 26, B & S Ga.....	18 1/2 c
Wire, No. 27, B & S Ga.....	18 1/2 c
Wire, No. 28, B & S Ga.....	18 1/2 c
Wire, No. 29, B & S Ga.....	18 1/2 c
Wire, No. 30, B & S Ga.....	18 1/2 c
Wire, No. 31, B & S Ga.....	18 1/2 c
Wire, No. 32, B & S Ga.....	18 1/2 c
Wire, No. 33, B & S Ga.....	18 1/2 c
Wire, No. 34, B & S Ga.....	18 1/2 c
Wire, No. 35, B & S Ga.....	18 1/2 c
Wire, No. 36, B & S Ga.....	18 1/2 c
Wire, No. 37, B & S Ga.....	18 1/2 c
Wire, No. 38, B & S Ga.....	18 1/2 c
Wire, No. 39, B & S Ga.....	18 1/2 c
Wire, No. 40, B & S Ga.....	18 1/2 c
Wire, No. 41, B & S Ga.....	18 1/2 c
Wire, No. 42, B & S Ga.....	18 1/2 c
Wire, No. 43, B & S Ga.....	18 1/2 c
Wire, No. 44, B & S Ga.....	18 1/2 c
Wire, No. 45, B & S Ga.....	18 1/2 c
Wire, No. 46, B & S Ga.....	18 1/2 c
Wire, No. 47, B & S Ga.....	18 1/2 c
Wire, No. 48, B & S Ga.....	18 1/2 c
Wire, No. 49, B & S Ga.....	18 1/2 c
Wire, No. 50, B & S Ga.....	18 1/2 c
Wire, No. 51, B & S Ga.....	18 1/2 c
Wire, No. 52, B & S Ga.....	18 1/2 c
Wire, No. 53, B & S Ga.....	18 1/2 c
Wire, No. 54, B & S Ga.....	18 1/2 c
Wire, No. 55, B & S Ga.....	18 1/2 c
Wire, No. 56, B & S Ga.....	18 1/2 c
Wire, No. 57, B & S Ga.....	18 1/2 c
Wire, No. 58, B & S Ga.....	18 1/2 c
Wire, No. 59, B & S Ga.....	18 1/2 c
Wire, No. 60, B & S Ga.....	18 1/2 c
Wire, No. 61, B & S Ga.....	18 1/2 c
Wire, No. 62, B & S Ga.....	18 1/2 c
Wire, No. 63, B & S Ga.....	18 1/2 c
Wire, No. 64, B & S Ga.....	18 1/2 c
Wire, No. 65, B & S Ga.....	18 1/2 c
Wire, No. 66, B & S Ga.....	18 1/2 c
Wire, No. 67, B & S Ga.....	18 1/2 c
Wire, No. 68, B & S Ga.....	18 1/2 c
Wire, No. 69, B & S Ga.....	18 1/2 c
Wire, No. 70, B & S Ga.....	18 1/2 c
Wire, No. 71, B & S Ga.....	18 1/2 c
Wire, No. 72, B & S Ga.....	18 1/2 c
Wire, No. 73, B & S Ga.....	18 1/2 c
Wire, No. 74, B & S Ga.....	18 1/2 c
Wire, No. 75, B & S Ga.....	18 1/2 c
Wire, No. 76, B & S Ga.....	18 1/2 c
Wire, No. 77, B & S Ga.....	18 1/2 c
Wire, No. 78, B & S Ga.....	18 1/2 c
Wire, No. 79, B & S Ga.....	18 1/2 c
Wire, No. 80, B & S Ga.....	18 1/2 c
Wire, No. 81, B & S Ga.....	18 1/2 c
Wire, No. 82, B & S Ga.....	18 1/2 c
Wire, No. 83, B & S Ga.....	18 1/2 c
Wire, No. 84, B & S Ga.....	18 1/2 c
Wire, No. 85, B & S Ga.....	18 1/2 c
Wire, No. 86, B & S Ga.....	18 1/2 c
Wire, No. 87, B & S Ga.....	18 1/2 c
Wire, No. 88, B & S Ga.....	18 1/2 c
Wire, No. 89, B & S Ga.....	18 1/2 c
Wire, No. 90, B & S Ga.....	18 1/2 c
Wire, No. 91, B & S Ga.....	18 1/2 c
Wire, No. 92, B & S Ga.....	18 1/2 c
Wire, No. 93, B & S Ga.....	18 1/2 c
Wire, No. 94, B & S Ga.....	18 1/2 c
Wire, No. 95, B & S Ga.....	18 1/2 c
Wire, No. 96, B & S Ga.....	18 1/2 c
Wire, No. 97, B & S Ga.....	18 1/2 c
Wire, No. 98, B & S Ga.....	18 1/2 c
Wire, No. 99, B & S Ga.....	18 1/2 c
Wire, No. 100, B & S Ga.....	18 1/2 c

LEAD

American Pig	\$ 7 15
Bar	8 15

SHEET

Full Coils	per 100 lbs. 14 00
Cut Coils	per 100 lbs. 14 25

TIN

Pig Tin	per 100 lbs. \$75 00
Bar Tin	per 100 lbs. 76 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16.....	6c per lb.
Roll board	6 1/2 c per lb.
Mill board 3/32 to 1/2.....	6c per lb.
Corrugated Paper (250	
sq. ft. to roll).....	\$6 00 per roll

BRUSHES

Hot Air Pipe Cleaning

Bristle, with handle, each	\$0 85
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Flue Cleaning

Steel only, each.....	1 25
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BURRS

Copper Burrs only.....	40-5%
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CEMENT, FURNACE

American Seal, 5-lb. cans, net	\$ 40
American Seal, 10-lb. cans, net	80
American Seal, 25-lb. cans, net	2 00
Pecora	per 100 lbs. 7 51

CHIMNEY TOPS

Adams' Revolving	
Wt. Doz. Prize Doz.	
4 in.....21 lbs.....	\$11 00
6 in.....24 lbs.....	11 50
7 in.....30 lbs.....	13 50
8 in.....33 lbs.....	15 00
9 in.....51 lbs.....	16 50
10 in.....56 lbs.....	18 00
12 in.....66 lbs.....	22 00
14 in.....110 lbs.....	36 00

CLINKER TONGS

Front Rank, each.....	\$0 75
Per doz.....	8 40

CLIPS

Damper	
Acme, with all tail pieces,	
per doz.....	\$1 25
Non Rivet tail pieces,	
per doz.....	25

COPPERS—Soldering

Pointed Roofing	
3 lb. and heavier.....	per lb. 40c
2 1/2 lb.	per lb. 45c
2 lb.	per lb. 45c
1 1/2 lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending	
Nos. 1 to 6B.....	Net

CUT-OFFS

Gal., plain, round or cor. rd.	
26 gauge	30%
28 gauge	35%

DAMPERS

"Yankee" Hot Air	
7 inch, each 20c, doz.....	\$1 75
8 inch, each 25c, doz.....	2 40
9 inch, each 30c, doz.....	2 75
10 inch, each 32c, doz.....	3 00

Smoke Pipe

7 inch, each.....	\$0 35
8 inch, each.....	40
9 inch, each.....	50
10 inch, each.....	60
12 inch, each.....	90

Reversible Check

8 inch, each.....	\$ 56
9 inch, each.....	70

Diamond Smoke Pipe

7 inch, doz.....	\$ 5 00
8 inch, doz.....	8 00
9 inch, doz.....	12 00
10 inch, doz.....	15 00

Adams' Sheet Metal

7 inch, doz.....	\$ 1 60
8 inch, doz.....	2 20
9 inch, doz.....	2 60
10 inch, doz.....	2 80

DIGGERS

Post Hole

Iwan's Split Handle	
(Eureka)	
4-ft. Handle.....per doz.	\$14 00
7-ft. Handle.....per doz.	36 00
Iwan's Hercules pattern,	
per doz.....	14 90

EAVES TROUGH

Galv. Crimpedge, crated 75 & 5%	
Zinc, "Barnes".....	60%

ELBOWS

Conductor Pipe

Galv., plain or corrugated,	
round flat Crimp.	
28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. & Terne Steel

Plain Rd. and Rd. Corr.:	
28 Ga.	60%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge.....	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe,	
plain or corrugated.	
Not nested	70 & 5%
Nested solid	70 & 5%

Sq. Corr., A. & B. & Octagon:

28 Ga.	50%
26 Ga.	35%

Portico

1", 1 1/4", 1 1/2".....	45%
-------------------------	-----

Copper

16 oz., all designs.....	45%
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Zinc—

All styles	60%
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ELBOWS—Stove Pipe

1-piece Corrugated, Uniform Blue	
"Milcor" No. 28 Gauge. Doz.	
6-inch	\$1 25
6-1/2 inch	1 35
7-inch	1 75

Special Corrugated

6-inch	\$1 00
7-inch	1 60

Adjustable—Uniform Blue

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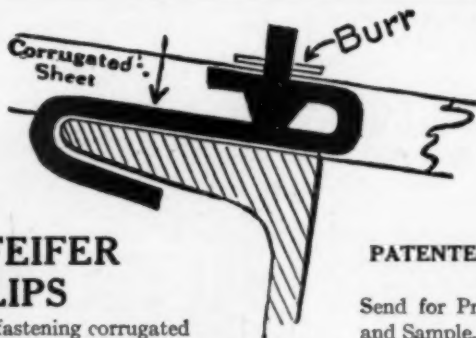
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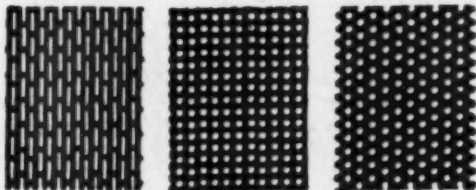
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WHEELING, W. VA.

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Address

Business



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SHEET STEEL COATED WITH PURE LEAD

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NETTING, POULTRY		ROOFING	
Galvanized before weav-	ing 57½-5%	Best grade, slate surf. pre-	pared \$ 2 30
Galvanized after weaving.	52½-5%	Best talc surfaced.	2 65
		Medium talc surfaced.	2 00
		Light talc surfaced.	1 20
		Red Rosin Sheeting, per ton	57 00
PASTE		SCREWS	
Asbestos Dry Paste:		Sheet Metal	
200-lb. barrel	\$16 00	7. ½x½, per gross.	\$0 52
100-lb. barrel	8 75	No. 10, ¾x16, per gross.	68
35-lb. pail	3 50	No. 14, ¾x½, per gross.	89
10-lb. bag	1 10		
5-lb. bag	60		
2½-lb. cartons	25		
PIPE		SHEARS, TINNERS' & MACHINISTS'	
Conductor		Viking	\$22 00
Cor. Rd., Plain Rd. or Sq.		Lennox Throatless	
Galvanized		No. 13	35%
Crated and nested (all	gauges) 75-2½%	Shear blades	10%
Crated and not nested	(all gauges) 70-15%	(f. o. b. Marshalltown, Iowa.)	
Furnace Pipe		SHIELDS, REGISTER	
Double Wall Pipe and	Fittings 50%	No. 1 "Gem" floor	\$12 00 doz.
Single Wall Pipe, Round		No. 2 "Gem" wall	6 00 doz.
Galvanized Pipe	50%		
Galvanized and Tin Fittings	50%		
PIPE		SHOES	
Lead		Galv. 28 Gauge, Plain or cor-	rugated round flat crimp . . . 60%
Per 100 lbs.	\$12 50	26 gauge round flat crimp	45%
Stove Pipe		24 gauge round flat crimp	15%
"Milcor" "Titelock" Uniform Blue	Stove		
28 gauge, 5 inch U. C.	11 50		
28 gauge, 6 inch U. C.	12 25		
28 gauge, 7 inch U. C.	14 25		
30 gauge, 5 inch U. C.	10 50		
30 gauge, 6 inch U. C.	11 25		
30 gauge, 7 inch U. C.	13 25		
T-Joint Made up	6-inch, 28 ga. per doz. \$ 5 00		
All Zinc	No. 11, all styles 60%		
POKERS, STOVE		SNIPS, TINNERS'	
W'r't Steel, str't or bent,	per doz. \$0 75	Clover Leaf	40 & 10%
Nickel Plated, coil handles,	per doz. 1 10	National	40 & 10%
		Star	50%
		Milcor	Net
POKERS, FURNACE		SQUARES	
Each	\$0 50	Steel and Iron	Net
PULLEYS		(Add for bluing, \$3 per doz. net.)	
Furnace Tackle	per doz. \$0 60	Mitre	Net
Furnace Screw (enameled)	per gro. 6 00	Try	Net
	per doz. 75	Try and Bevel	Net
Ventilating Register		Try and Mitre	Net
Per gross	9 00	Fox's	per doz. \$6 00
Small, per pair	30	Winterbottom's	10%
Large, per pair	50		
PUTTY		STOPPERS, FLUE	
Commercial Putty, 100-lb		Common	per doz. \$1 10
Kits	\$3 40	Gem, No. 1	per doz. 1 10
		Gem, flat, No. 3	per doz. 1 00
QUADRANTS		VENTILATORS	
Malleable Iron Damper	10%	Standard	30 to 40%
REDUCERS—Oval Stove Pipe		WIRE	
Per Doz.		Plain annealed wire, No. 8,	per 100 lbs. \$3 05
7-6, 1 doz. in carton	\$2.25	Galvanized barb wire, per	100 lbs. 3 90
REGISTERS AND BORDERS—		Wire Cloth—black painted,	12-mesh, per 100 sq. ft. 1 65
Baseboard, Floor and Wall.		Cattle Wire—galvaniz'd catch	weight spool, per 100 lbs. 3 65
Cast Iron	20%	Galvanized Hog Wire, 80 rod	spool, per spool. 3 18
Steel and Semi-Steel	40%	Galvanized Plain Wire, No.	9, per 100 lbs. 2 40
Baseboard	40%	Stove Pipe, per stone	1 10
Wall	40%		
Adjustable Ceiling Ventilators	40%		
Register Faces—Cast and Steel		WRINGERS	
Japanned, Bronzed and		No. 790, Guarantee	each \$5 10
Plated, 4x6 to 14x14	40%	No. 770, Bicycle	each 4 70
Large Register Faces—Cast,	14x14 to 38x42	No. 670, Domestic	each 4 35
Large Register Faces—Steel,	14x14 to 38x42	No. 110, Brighton	each 2 70
	65%	No. 750, Guarantee	each 5 10
		No. 740, Bicycle	each 4 70
		No. 22, Pioneer	each 3 40
		No. 2, Superb	each 2 65
RIDGE ROLL			
Galv., Plain Ridge Roll,	b'd'd 75-10-5%		
Galv., Plain Ridge Roll	crated 75-10%		
Globe Finials for Ridge	Roll 50%		

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REVOLVING**



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for
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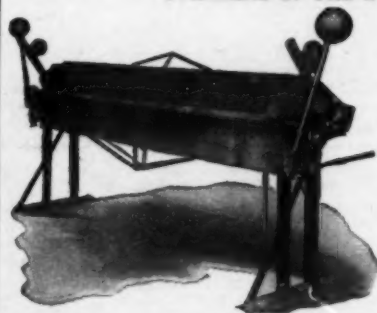
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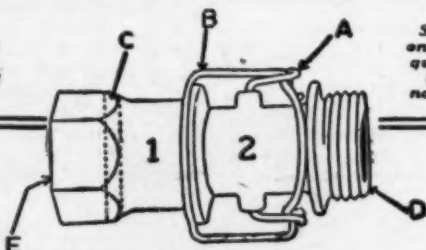


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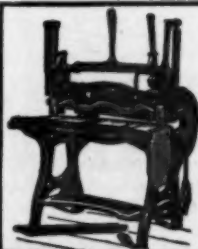
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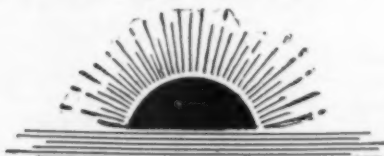
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Any yearly subscriber to **AMERICAN ARTISAN** may insert advertisements of not more than fifty words in our Want and Sales Columns **WITHOUT CHARGE**.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired.

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Wanted—Partner in a good going, established sheet metal and furnace business. Need a partner to help on sales, as well as the mechanical end of the business. The business will bear close investigation. For further information call or write **C. A. Fitch, 113 W. Jackson Street, Millersburg, Ohio.** 25-3t

For Sale—A splendid opportunity to enter the retail furnace business in western Iowa city. Will sell a part interest or all to man capable of taking charge of retail sales. Address—**B-51, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

Partner Wanted—To join me in a going furnace heating business. Have been selling furnaces in Des Moines several years and have installed several hundred. Address—**B-40, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 23-3t

For Sale—Warm Air heating and sheet metal business in busiest town of 150,000 population in central states or can use active partner. Prompt action necessary. Address—**B-49, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

For Sale—Plumbing, heating and sheet metal shop; small town in eastern Iowa; must be sold soon; good reasons for selling. Address—**B-53, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

For Sale—Tin shop. Small stock and plenty of tools also cornice brake at Mount Victory, Ohio. No other tin shop there. Write **Arthur E. Hommel, Kenton, Ohio.** 24-3t

For Sale—Overstock of laundrette or Prima Washers, either at \$90.00 net. Address—**Williams Hdwe. Co., Streator, Illinois.** 23-3t

SITUATION WANTED

Situation Wanted—As tinner and furnace man. Can also do plumbing. I am a good workman and not afraid to do an honest day's work. I am married and want a position in a town under 6,000 population. It must be steady the year around. State wages and particulars in your letter. Address **Box 175, Parkston, South Dakota.** 24-3t

Situation Wanted—By heating engineer with a thorough knowledge of furnace manufacturing and selling. Know what the dealer wants and how to open and build new accounts, also how to build and hold a producing sales organization. Address **B-54, care American Artisan, 620 South Michigan Avenue, Chicago, Illinois.** 25-3t

Situation Wanted—By an all around sheet metal worker. Plumber and furnace man. Can come at once. State hours and wages in first letter. Best of references given. Address—**B-46, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

SITUATION WANTED

Situation Wanted—Married man wants steady position in sheet metal shop, preferably in west. Can make own patterns and install furnaces. Excellent references. State wages in first letter. Address—**B-36, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 22-3t

Situation Wanted—By first-class tinner and furnace man. Can do inside and outside work. 25 years at the trade. Nothing but steady job the year around. Am married. Can do anything that comes in any tin shop. Address **W. J. Mack, 106½ East Main Street, Saint Charles, Illinois.** 25-5t

Situation Wanted—By an all around sheet metal worker, layout, assemble and erect in all branches. Capable of taking charge, work from blue prints and not afraid of work. 39 years of age. Good health. Address—**B-35, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 22-3t

Situation Wanted—Position as foreman or layout man. Experienced on all classes of light and heavy sheet metal work. Absolutely reliable. 42 years of age. Address—**B-44, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

Situation Wanted—Young married man with 5 years' experience at sheet metal and pipe work, desires situation in sheet metal shop or combination sheet metal and pipe shop. Address—**B-42, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 23-3t

Situation Wanted—By young sheet metal and furnace man. Qualifications and experience on request. Must be steady position. Minnesota or Wisconsin preferred. Address—**B-34, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 22-3t

Situation Wanted—By all around man who can do plumbing and tinning. A first class furnace man. Prefer Iowa. Address—**B-41, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 23-3t

Situation Wanted—By middle-aged married man. Combination plumber and sheet metal worker. Address—**B-55, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 25-3t

Situation Wanted—By Illinois licensed plumber. 19 years' experience. Married. Can do steam and hot water heating. A-1 mechanic. Address **Plumber, 724 Main Street, Apt. 4, Davenport, Iowa.** 25-3t

HELP WANTED

Wanted—A man who can do sheet metal work, plumbing, steamfitting and furnace work. This is a steady position for the right man. This is a good Minnesota town about 3000 population. Please state wages and experience. Address—**B-48, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

Wanted—Tinner for country tin shop; must be able to do work that comes to town of 5,000 people. Work guaranteed to Christmas. Wages \$30.00 per week. Must be capable of doing good work. Middle aged man preferred. Address **Murphy's Plumbing and Tin Shop, Flat River, Missouri.** 24-3t

Wanted—Two first-class tinner and furnace men that can complete a job in a first-class manner from start to finish. Must be sober and reliable. State wages wanted in your letter. Address **B-56, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 25-3t

Wanted—First class sheet metal worker and slate roofer. Union shop. Steady position the year around. Must be absolutely sober and reliable and furnish references. Address—**B-50, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

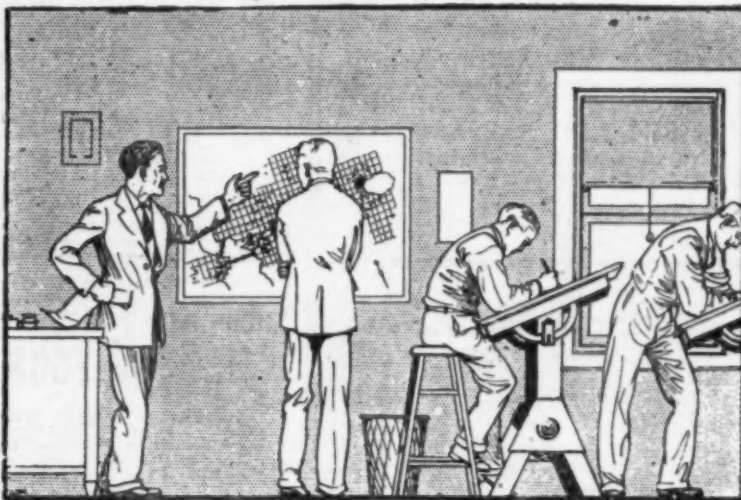
Wanted—Two sheet metal workers for a manufacturing and special job shop. \$30.00 per week of 50 hours per week. Open shop. Address—**B-45, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

Wanted—Young married man preferred. Shop, furnace, gutter and roof work. Year around position. Town of 3000. Address—**B-38, care AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.** 24-3t

Wanted—Party with sales and mechanical ability to take local management of combination plumbing and tin shop. Must have \$500 to invest in business. This is a rare opportunity. Illinois Plbg. & Htg. Company, Du Quoin, Illinois. 25-3t

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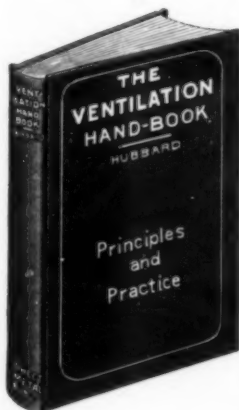
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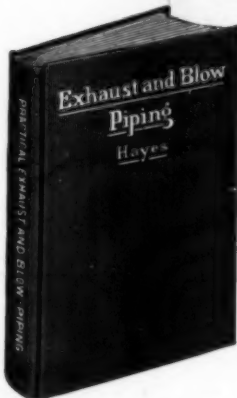


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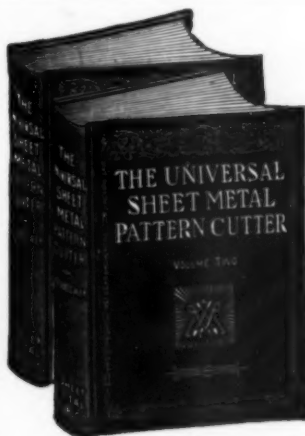
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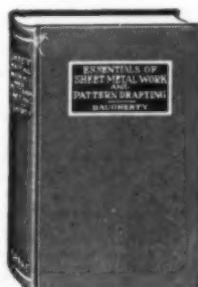


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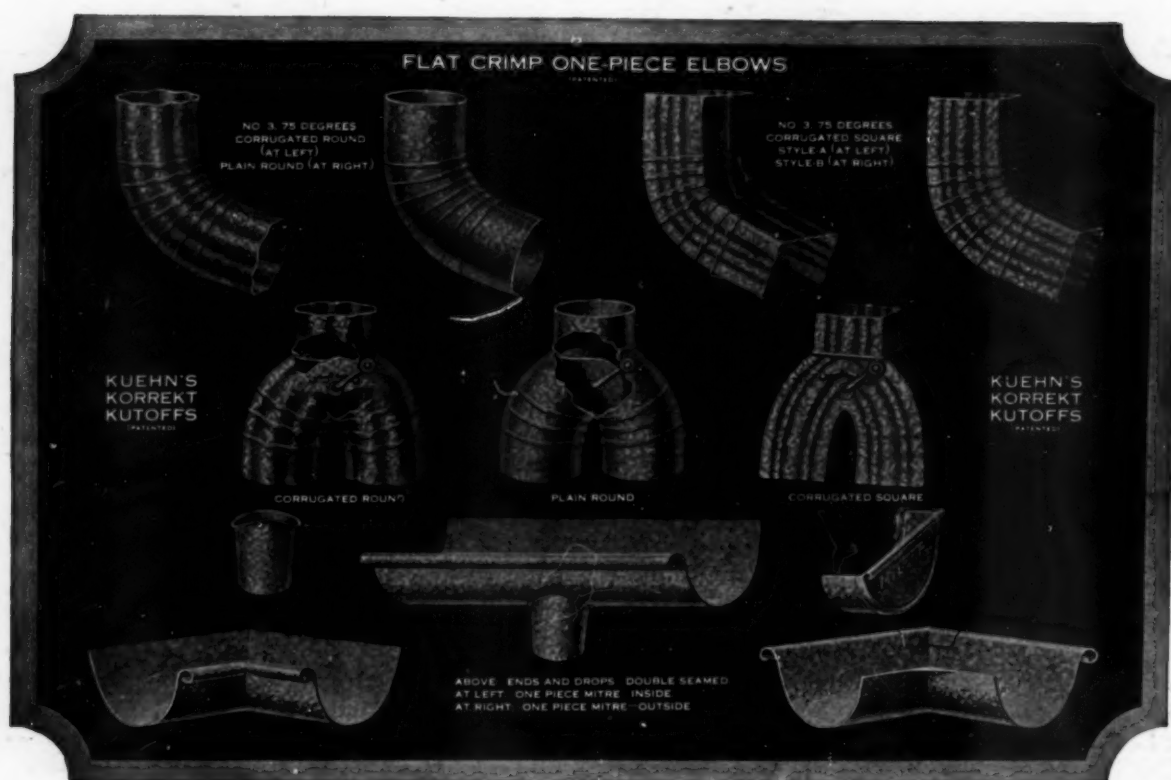
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